

**Package tourism in Bangkok area, Thailand –  
A study of townscape assessment and urban space images  
with special consideration given to  
Swiss and other European pleasure tourists**

INAUGURAL-DISSERTATION

zur Erlangung  
der Philosophischen Doktorwürde  
vorgelegt der Philosophischen Fakultät II  
der Universität Zürich

von

RETO VIKTOR CALLEGARI  
von Stäfa (Kt. Zürich)

Begutachtet von den Herren

Prof. Dr. Hans Boesch  
Prof. Dr. Albert Leemann



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## Preface

In this place I should like to express my thanks to all those who have helped with the preparation of this dissertation.

I am deeply grateful to my parents, my sister and my wife for their never ending encouragement and patience.

My special thanks go to Mr. Rangsi Punyahotra for his extraordinary hospitality and support.

This study owes much for its inception, and for subsequent stimulus and encouragement, to Prof. Dr. Hans Boesch and Prof. Dr. Albert Leemann, University of Zurich, and the National Research Council of Thailand and its Secretary-General, Prof. Sangha Sabhasri.

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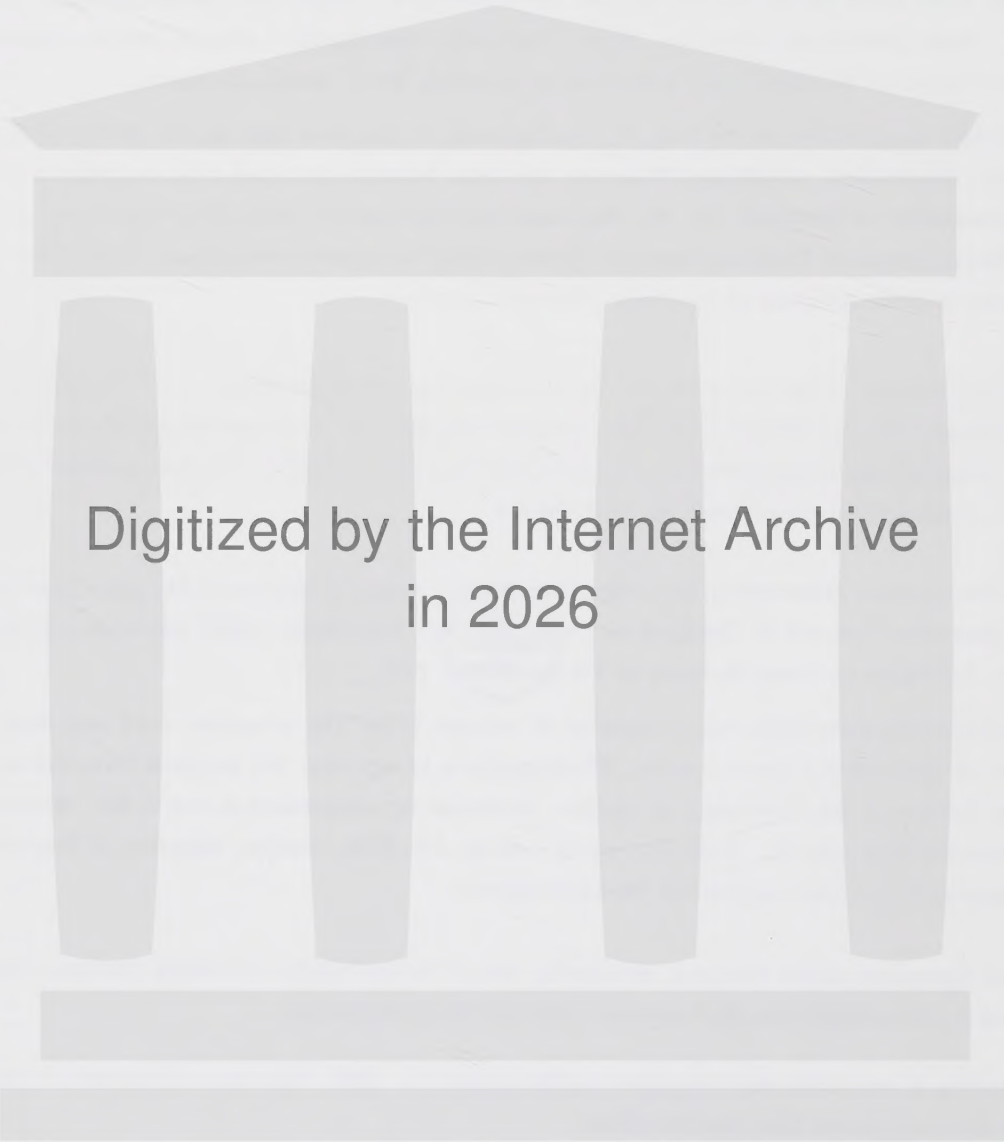
Work on the project, financed by the author personally, began in Summer 1974 after approval by the National Research Council of Thailand as its project No. 1104/6022, 18335 (Directory of Foreign Research Activities on Social Science in Thailand, No. 297).

The environmental field work was completed in Autumn 1975. The computer work was done by the author at the Computer Science Center, Chulalongkorn University, the Bangkok Data Center, and the Computer Center at the University of Zurich. Gratitude for assistance is due to Mr. Worawudj Kruasin, Mr. Robert Shedden and Dr. Guido Dorigo as well as Dr. R.R. BarOn, Ministry of Tourism, Israel, for the processing of the time series (X-11 program).

A planned digression about Bangkok Metropolis had to be omitted for technical reasons. Readers interested in this subject can find sources listed in the bibliography.

The gathering of material was completed on December 31, 1975. Sources and literature published after this date were not taken into consideration.





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## INTRODUCTION

### 0.1. The problem

The environment has been recognized as a matter of some importance since tours have been arranged by tour operators. They, as well as government tourism officials, have, according to their competition for market shares, to obtain a certain expertise in selling regions of interest on the world travel market.

In package tourism, the active selection and evaluation of destinations by tour operators plays a basic role. To bring the tourist into close contact with the destination-surroundings - according to promotion purposes, existing visitor plants, to cite only a few - is one more or less crucial criterion in this evaluation. The range of tourist attractions is manifold and not restricted to land- or townscape resources - such as the visual-cultural townscape resource, the focus in the present study .

This work is concerned with tourist-assessments in a specific city destination. Until now, similar studies have only concerned residents. The search for appropriate research methods among tourists may seem premature for reasons stated in more detail under 2.3. and 3.4.

However, we are of the opinion that, at the present state of assessment and perception studies, systematic surveys concerning the assessment of destinations are in the fullness of time also in tourism.

Much of the travel research available is no more than opinion sampling often directed towards a specific sales goal. Basic research and its necessary funds are often unavailable. Moreover, because of international fragmentation of the industry and its enormous complexity, valuable data are scattered and some research work is carried on in isolation. Its fruits remain within a small circle, outside the main stream of industry activity.

The lack of systematic research data or their insufficiency and unavailability has had an increasing impact on the operations of agencies around the world. Many agents simply operate their business on the basis of some vague assumptions or around a few focal points such as fares, rates and commission levels. Beyond that, they rarely penetrate.

Finally, the need for meaningful data is especially acute now because the international travel business is not only becoming more and more intermingled, but also increasingly complex.

Factors such as technological improvements, currency differences, but also the physical environment, climate, different standards of living and culture, sociological aspects - to touch only a few - all play a role, sometimes a decisive one in certain instances.

Every attempt at planning and resource management must seek to assess a region's tourism assets (e.g. see WORLD BANK, 1975, p.1).

With the selection and evaluation of such assets, among others of the - here crucial - visual-cultural townscape resources, we face several hitherto unsolved problems (for particular elaboration, see 2.3. and 3.4.).

The values inherent in land and the townscape include a vast array of both benefits and costs - some direct, some secondary; some tangible, some intangible; and some private, some social.

"One benefit of living in one of the wealthier nations of the world is that we can now afford the luxury of contemplating the secondary, the intangible ... (values)" (WHALEY, 1975, p. 39)

This is not to suggest that these are trivial concerns by any means. Rather, it is to point out that these concerns have arisen only in the past few decades among the wealthier nations of the world, so far for practical and theoretical reasons mostly among residents (for comparison, see 2.47.).

Landscape appreciation is a more commonly held cultural value now than it was several decades ago. Until recently, "landscape assessment" - the assessment of landscape resources - has had a strong economic bias, especially towards the word "assessment".<sup>1)</sup> Within the new, uneconomic (in its strict sense) approach, the question arises as to which land- respectively townscape values play the relevant role. For the present we explicitly point to the fact that the "dream lure factor", that unknown, difficult-to-quantify factor that makes many people travel, is of course never interpreted as a determining factor in the sense of a new geographical determinism - tourism is highly a product of dreams and phantasies - but that the aspect "visual-cultural townscape resource" is only one of many possibles, e.g. the "fun- and games aspect" etc., whereas nothing is being said about the relative importance of this aspect!

Our approach to the urban environment is narrow and may be inconsistent with what people themselves regard as significant. The image of a place may include not only its visual appearance but other things such as availability of entertainments which contribute, in a general sense, to the tourist's quality of stay in the destination.

An evaluation and analysis of tourism resources (or "tourism assets") has therefore to take into consideration four different groups of elements:

- (1) Primary attractions
- (2) Complementary factors
- (3) Supporting facilities
- (4) Infrastructure and transport.

Primary attractions are location-bound natural or man-made assets rare and unique and therefore worth visiting.

Of particular concern for us is that the tourist's appreciation of the attraction will be influenced by its environment (complementary factors).

Furthermore, his stay in the area requires accommodation, utilities and services (supporting facilities). To enable a tourist to reach any destination, access (infrastructure) and transport are needed.

The basic assumption of this study is that the understanding of the mental images of the environment which tourists form is both a worthwhile research goal in its own right and, perhaps more important, a contribution to the future development of a theory relating human behaviour and the environment.

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1) The term "assessment" as used here refers to the evaluation or judgment of the overall visual-cultural value of a total townscape and its parts.



So far, the identification and weighting of these values in package tourism has been based almost solely on the professional judgment of tour operators, tourism officials and planners. However, we consider a more sophisticated and rigorous approach to these values not merely for academic interest. In accordance with ZUBE, PITT, ANDERSON, RIOTTE, FABOS, IVERSON and others, we take land- and townscape assessment elements - such as scenery- as unique, if not scarce, resources. As resources, however, they are amenable to constructive manipulation and management. The evaluation and optimal use of land- or townscapes for package tourism destinations therefore requires a resource-management program. The question is on what such a program could and should be based, because resources, like the perceived environment, could be liable to rapid change in the light of variable information.

## 0.2. The objectives

The principal task therefore is to identify and develop methods and procedures which could enable that presently unquantified environmental amenities and values may be given appropriate consideration in decision-making by public and private tourist organizations and tour operators, along with economic and technical considerations.

Only by examining an environment in terms of all its components simultaneously can we expect to evaluate the importance of the scenic contribution of any one component, such as constructions, traffic, people, water, or vegetation etc., in a metropolitan scene and to identify the main visual-cultural resources of the townscape.

A hypothetical procedure for evaluating these scenic contributions would involve six steps:

- (1) Identification of the important elements affecting evaluation of (parts of) the townscape.
- (2) Identification of the significant attributes of those elements which enable us to make a qualitative, if possible quantitative, statement about their condition.
- (3) Development of regional standards for each of the elements.
- (4) Evaluation of current "land use" (sightseeing, rest and recreation visits etc.) against the standards.
- (5) Evaluation of alternative future land uses against the standards.
- (6) Selection of that combination of future uses which appear to have maximum gains and minimum losses.

During the past decade, behavioural scientists and environmental designers and planners have begun to undertake the kinds of research and to develop the kinds of assessment techniques required to make such evaluation, planning and management possible and meaningful, at least among residents. However, with regard to the special conditions in tourism, these techniques must be simplified.

This project was undertaken to advance the systematic collection and subsequent analysis of tourists' responses, attitudes, opinions, preferences and values relating to the environment - Bangkok Metropolis - as a package tourism destination.

What work had been done in the analysis of such attitudes, opinions, preferences and values related mainly to laboratory conditions, to highly localized features of landscape, or to artificial behavioural situations. Most of this research work is characterized by an exploratory nature and a focused approach, selected probably in terms of the specific skills and interests of the research team; for those reasons, there is a wide gap between the research findings - many of them tentative and even conflicting - and operational knowledge for planners and designers.

The specific aim was to develop ways of studying environmental responses that would:

- (1) show how "mass"-tourists - in general - conceive the destination's outdoor milieu. The principal aspects of the work were to find means of measuring "public images", i.e. the common mental pictures carried by large numbers of tourists and to identify broad areas of agreement by means of adequate and operationable techniques. In this survey, 82 % of the tourists indicated information transmitted by word-of-mouth by friends and/or relatives as the only source of information used (42 % in the United Kingdom portion of the "Pacific Visitors Survey", where this is the most important single source of information mentioned).<sup>1)</sup>

"It is this information by word-of-mouth means within the population which will tend to be cyclical, leading to a steady state in the perceived environment and resources sub-system!"

(BROOKFIELD, 1969, p. 65)

- (2) indicate what connections people tend to make among various environmental attributes and
- (3) measure the extent to which differences in environmental setting affect these judgements, choices, and relationships.

If townscape assessment is the subjective experience, then planners cannot directly affect it or manipulate it. But if the relation of real environmental variables to the assessed, perceived environment is known, and the relationship of perceived environment and evaluation is understood, then these latter evaluations may become more predictable and might possibly be affected by manipulating perceived environments.

In order to deal with the assessment, it must be considered in terms of human responses, i.e., as subjective and perceived, principally in terms of the rates of information processing before they are judged against some norms.

In this respect it seems indispensable to draw attention to the following important aspects of social science:

- (1) The geographer (as social scientist) is often forced to work with the most complex experimental situations. He is seldom in a position to keep the setting by means of manipulation as simple as possible. He is much less sure than the natural scientist whether his assumptions include all the variables which are relevant to the problem posed.

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<sup>1)</sup> The European set of respondents totalled 340 persons units of information.

In general he must even assume that his description of the experimental situation is incomplete. As a social scientist he can scarcely ever repeat his experiment in exactly the same way although the more complex the experimental situation is, the more important this would be.

As we shall see, the experimental situation is however always complex especially in the aspects held to be relevant here.

- (2) The social scientist is moreover rather constrained in respect to the object of his investigation. Knowledge of perceptions and assessments touch on the personal realm of every individual, touch on realms, then, about which the researcher as well as the practitioner and all potential recipients have formed their own ideas before any research has been done.

This paper is concerned with a general survey of townscape assessment by package tourists based on the example of one case which has been statistically examined.

The reactions of a full 200 tourists have been assessed. It is known how they behaved in the test situation presented.

The results which are to be interpreted lie in the form of the so-called EoA (Extent of agreement on the evaluation of different (simulated) parts of a townscape).

The perceptual and assessment townscape chosen for this study is man-made: the townscape of BANGKOK METROPOLIS in Thailand.

This destination was chosen because it was predestined for an investigation of this kind. Thailand's position as a tourist receiving country is supported by:

- (1) Airline crossroad position of Bangkok
- (2) Liberal air policy allowing charter flights
- (3) Low average price level
- (4) Broad range of primary attractions

Furthermore, and more important, it is the only town-destination from Switzerland with sufficient regular arrivals that make it possible to contact the required number of visitors within an economically reasonable span of time. These tourists are recruited from the most different backgrounds - a further advantage concerning the composition of the test persons.

The problem encountered prior to any decision about the destination to be chosen is whether the researcher examines the crucial problems of the discipline or the crucial problems of the particular area under study.

Rather than resolve the problem between area and discipline, we had to undertake a sometimes unsatisfactory middle course by examining the specialized problems of the discipline within the primate city of Thailand. Yet, ignoring the Thai context of the urban environment is neither possible nor desirable (see KRANNICH, 1974).

This compromise between discipline and area specialization is a fact that cannot completely be avoided since locational as well as non-locational aspects may play the decisive role in the evaluation of a destination's visual-cultural townscape resource.



The essential reference points of this paper are herewith set.

It represents an attempt in inductive direction (POPPER, 1964), in the direction of a logically consistent connection between indicators of abstract concepts operationalised through the help of indicators from the most diverse perception- and assessment spheres.

Assessment field research can, however, only be undertaken (research funds are always in short supply) if an explicit theory exists which states what is to be regarded as relevant in respect to the given problems.

Research without selective points of view does not exist anyway. The difference lies merely in how explicit these are presented and handled.

We therefore see the goal of this paper in the adequate fulfillment of the following tasks:

(1) Becoming sensitive as how the evaluation of different (simulated) parts of a townscape (see chap. 4.4. and p.151) is to be interpreted in order to clarify the image of the townscape.

The significance of theoretical prerequisites is hereby given particular attention. Attention is expressly drawn to the modest state of research done in perception studies by non-psychologists, which must be taken into consideration in essential stages of interpretation.

(2) Choice of existing abstract hypotheses which appear to be adequate to the relations and objects to be examined according to the suppositions of point (1) (approach, theory).

(3) Classification of concrete data into the abstract concepts chosen in the approach (operationalizing of variables).

(4) Analysis of the data (logical transformation), theoretical interpretation of the data and subsequent construction of a model.

The model should predict quite accurately how tourists will rank (or score) different parts of a townscape-destination, i.e. Bangkok. The model's parts should include those features which are important in a townscape's aesthetic appeal.

The result of this study is presented in two volumes.

Volume I includes a presentation of the sphere of research, of the theoretical bases in the form of comparative studies of the results of accomplished research, of the work methods (chap. 3.2.) and also of the analysis and the interpretation of the data (Parts 4 and 5).

The fourth part forms the core of the work.

Volume II allows a glimpse into the "workshop". For this purpose one should especially take note of the appendix which is a prerequisite of the detailed follow-up of the statements made in volume I. Thus, the texts are necessary parts of a whole and are separated into two volumes only for reasons of clarity.

Furthermore, this study provides - in Part I and Appendices 1 and 2 - basic information on the composition and "spatial behaviour" of the segment organised by Swiss tour operators in package tourism to Thailand, that, to our knowledge, does not exist in this form in any other source. This information serves for more than a mere comparison of sample and universe-characterisation. Much of it should be classified in a form for optimal usage by marketers (cf. appendices 1, 2).

## PART 1. THE PHENOMENON OF TOURISM TO THAILAND

### 1.1. Summary of the overall development of tourism to Thailand

Thailand has actively participated in the recent growth of travel to Southeast Asia and is one of the major destinations in the area. Since 1965 the number of visitor arrivals has increased at an average annual rate of 22%, reaching more than a million visitors in 1973. " The most significant factors in this rapid growth are the diversity and quality of the country's tourism attractions, Bangkok's strategic position on major world airlines routes and its use as a staging point for charter-flight tourists intending to visit other countries in the region" ( TOT/NTD, 1975).

The growth rate of international tourism over the entire 1963 - 1974 period has been slightly over 17,5 % compound.

TABLE 1 Thailand's position in tourism in Asia, with regard to selected destinations, 1969 and 1973

| Area        | 1)                        |              |                           |              |
|-------------|---------------------------|--------------|---------------------------|--------------|
|             | No ov arrivals<br>in 1973 | Rank<br>1973 | No of arrivals<br>in 1969 | Rank<br>1969 |
| Hong Kong   | 1,291,950                 | 1            | 765,213                   | 1            |
| Singapore   | 1,134,493                 | 2            | 408,709                   | 4            |
| Thailand    | 1,037,737                 | 3            | 469,784                   | 3            |
| Malaysia    | 869,559                   | 4            | 53,071                    | 7            |
| Japan       | 792,000                   | 5            | 581,132                   | 2            |
| Indonesia   | 270,303                   | 6            | 86,067                    | 6            |
| Philippines | 272,811                   | 7            | 123,268                   | 5            |

The development of charter-flight operations on a regular basis, and the availability of substantial discounts for group-travel on scheduled airlines, has made it possible for middle-income tourists especially from Europe, but also from Japan, Australia and North America to participate in the East Asia and Pacific travel market.

Group travel, particularly on charter flights, represents an increasingly important element of tourism demand for Thailand.

1) "Since 1960, various methods have been employed to collect statistics on the number of visitors to Thailand. The first method began in 1960 by gathering informations which dated back to 1957 from various hotels catering for international visitors. It was undertaken by a group of professors from the Mathematics Department of the Faculty of Science, Chulalongkorn University. At that time, there were only a small number of hotel rooms available. Therefore, it was assumed that approximately 20 per cent of visitors stayed at places other than the hotels. So to get the total number of visitors, 20 per cent had been added to the number of visitors gathered from the various hotels. The same method had been employed until 1962.

But from 1963, all statistics of incoming visitors had been collected from the records of the Immigration Division on a yearly basis.

Now, ever since September 1968, another improvement had been made. Instead of collecting data on a yearly basis, this is now being done on a daily basis while the scope of informations on visitors (has been) also expanded." (TOT, Tourist Organization of Thailand, 1970).

TABLE 2 Visitor flows to Thailand over the years 1963 - 1974

| Visitors coming from:        | 1963    | 1964    | 1965    | 1966    | 1967    | 1968    | 1969    | 1970    | 1971    | 1972    | 1973      | 1974      |
|------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-----------|-----------|
| OVERSEAS                     |         |         |         |         |         |         |         |         |         |         |           |           |
| North America:               |         |         |         |         |         |         |         |         |         |         |           |           |
| USA                          | 55,467  | 64,621  | 78,297  | 90,300  | 84,986  | 103,592 | 133,327 | 159,216 | 147,006 | 151,602 | 161,444   | 156,818   |
| Canada                       | 1,961   | 2,627   | 2,995   | 3,299   | 3,219   | 4,571   | 5,516   | 10,514  | 6,213   | 7,522   | 8,665     | 9,959     |
| Central America              | -       | -       | -       | -       | 906     | 1,787   | 3,238   | 5,565   | 2,512   | 3,051   | 3,142     | 3,185     |
| South America                | -       | -       | -       | -       | 967     | 1,829   | 3,234   | 4,854   | 2,576   | 2,669   | 2,973     | 3,074     |
| Europe:                      |         |         |         |         |         |         |         |         |         |         |           |           |
| Austria                      | 629     | 378     | 568     | 91      | 718     | 1,269   | 1,500   | 2,232   | 2,227   | 3,834   | 7,257     | 5,906     |
| Belgium                      | 500     | 79      | 383     | 127     | 847     | 1,225   | 2,140   | 3,372   | 2,540   | 3,737   | 5,883     | 6,519     |
| Denmark                      | 1,004   | 144     | 828     | 131     | 1,669   | 2,888   | 3,871   | 4,399   | 4,253   | 5,483   | 6,864     | 7,772     |
| Finland                      | -       | -       | -       | -       | 248     | 539     | 724     | 552     | 703     | 1,376   | 1,795     | 2,283     |
| France                       | 4,723   | 7,240   | 6,879   | 7,770   | 9,823   | 10,443  | 12,725  | 21,059  | 17,864  | 31,749  | 44,974    | 42,572    |
| Greece                       | -       | -       | -       | -       | 265     | 737     | 770     | 1,070   | 1,348   | 1,459   | 2,087     | 1,956     |
| Germany                      | 4,263   | 6,142   | 7,385   | 7,978   | 11,654  | 15,084  | 20,190  | 28,023  | 35,801  | 52,712  | 62,673    | 69,394    |
| Ireland                      | 123     | 22      | 148     | 27      | 192     | 445     | 681     | 780     | 657     | 960     | 1,140     | 1,560     |
| Italy                        | 2,080   | 2,445   | 2,437   | 2,727   | 3,495   | 4,537   | 6,188   | 11,031  | 9,174   | 13,836  | 19,974    | 23,818    |
| Luxembourg                   | -       | -       | -       | -       | 33      | 68      | 72      | 89      | 109     | 173     | 146       | 236       |
| Netherlands                  | 2,491   | 2,241   | 2,468   | 2,355   | 3,741   | 5,098   | 6,020   | 6,898   | 8,161   | 10,099  | 12,167    | 12,769    |
| Norway                       | 615     | 240     | 303     | 23      | 677     | 1,593   | 1,813   | 2,268   | 2,049   | 2,927   | 3,913     | 3,832     |
| Portugal                     | 254     | -       | 88      | 27      | 239     | 516     | 751     | 2,048   | 1,507   | 1,178   | 2,104     | 1,800     |
| Spain                        | 271     | 92      | 251     | 13      | 511     | 798     | 1,422   | 2,555   | 1,690   | 3,055   | 5,130     | 5,173     |
| Sweden                       | 1,471   | 1,904   | 1,943   | 1,970   | 2,312   | 3,799   | 5,339   | 5,627   | 5,313   | 8,053   | 9,973     | 11,210    |
| Switzerland                  | 2,186   | 2,021   | 2,852   | 4,050   | 5,653   | 7,372   | 8,143   | 12,805  | 9,904   | 15,182  | 23,763    | 26,368    |
| U. K.                        | 15,742  | 15,865  | 20,296  | 18,370  | 22,165  | 26,434  | 31,331  | 36,977  | 37,728  | 46,855  | 58,304    | 65,444    |
| Africa                       | -       | -       | -       | -       | 632     | 2,347   | 3,288   | 4,237   | 3,233   | 3,635   | 5,471     | 5,021     |
| Middle East                  | 729     | 146     | 537     | 85      | 1,609   | 3,352   | 4,279   | 6,945   | 6,910   | 7,156   | 8,297     | 8,912     |
| Pacific and Asia:            |         |         |         |         |         |         |         |         |         |         |           |           |
| Australia                    | 4,961   | 5,553   | 10,082  | 9,045   | 11,380  | 17,394  | 22,247  | 28,185  | 26,422  | 31,899  | 48,222    | 75,800    |
| China                        | 5,394   | 5,463   | 4,916   | 8,125   | 10,148  | 12,650  | 14,642  | 16,963  | 21,270  | 29,226  | 34,923    | 43,286    |
| Ceylon                       | 230     | 13      | 181     | 87      | 300     | 779     | 1,062   | 1,455   | 1,348   | 1,478   | 1,447     | 1,461     |
| India                        | 3,542   | 3,529   | 4,992   | 5,392   | 7,181   | 9,961   | 11,957  | 21,111  | 15,961  | 16,663  | 18,898    | 21,765    |
| Indonesia                    | 3,009   | 4,639   | 4,534   | 3,944   | 6,604   | 6,133   | 6,899   | 11,026  | 9,795   | 11,030  | 13,231    | 16,487    |
| Japan                        | 11,432  | 15,238  | 17,296  | 14,935  | 24,124  | 31,548  | 42,872  | 46,952  | 55,777  | 93,534  | 151,947   | 132,660   |
| Korea                        | 642     | 123     | 350     | 74      | 915     | 2,507   | 2,838   | 3,622   | 4,132   | 4,790   | 5,103     | 6,178     |
| Nepal                        | -       | -       | -       | -       | 461     | 1,090   | 1,517   | 1,476   | 1,566   | 2,279   | 2,466     | 2,819     |
| New Zealand                  | 837     | 442     | 1,111   | 151     | 1,673   | 2,874   | 3,424   | 4,849   | 3,746   | 4,199   | 5,782     | 7,563     |
| Pakistan                     | 1,191   | 694     | 1,061   | 162     | 1,610   | 2,938   | 3,602   | 5,142   | 3,645   | 7,132   | 8,057     | 4,635     |
| Philippines                  | 3,180   | 3,686   | 4,441   | 5,844   | 5,726   | 8,151   | 8,913   | 8,997   | 10,481  | 10,262  | 8,970     | 10,143    |
| Others                       | 5,544   | 13,001  | 12,198  | 20,009  | 17,600  | 1,508   | 1,780   | 2,472   | 2,311   | 3,559   | 6,004     | 8,069     |
| Total Overseas               | 134,271 | 138,588 | 189,620 | 207,111 | 244,283 | 297,856 | 378,315 | 485,366 | 465,992 | 594,348 | 763,189   | 806,447   |
| NEIGHBOURING COUNTRIES       |         |         |         |         |         |         |         |         |         |         |           |           |
| Burma                        | 1,323   | 1,160   | 744     | 14,083  | 3,246   | 4,100   | 2,280   | 2,463   | 1,646   | 2,557   | 1,720     | 7,349     |
| Khmer Rep.                   | -       | -       | -       | -       | -       | -       | -       | 829     | 4,359   | 11,958  | 16,011    | 25,024    |
| Laos                         | 11,263  | 8,780   | 15,631  | 22,822  | 35,690  | 18,302  | 16,022  | 20,155  | 21,570  | 23,969  | 30,128    | 26,576    |
| Malaysia                     | 47,548  | 40,349  | 18,446  | 38,821  | 46,712  | 47,235  | 59,621  | 105,037 | 128,989 | 162,566 | 190,827   | 197,508   |
| Singapore                    | -       | -       | -       | 1,579   | 3,895   | 7,013   | 9,593   | 11,586  | 18,185  | 22,270  | 31,754    | 39,638    |
| Vietnam                      | 671     | 3,047   | 602     | 701     | 2,019   | 2,756   | 3,953   | 3,235   | 2,997   | 3,090   | 4,108     | 4,850     |
| Total Neighbouring countries | 60,805  | 53,336  | 35,405  | 78,006  | 91,562  | 79,406  | 91,469  | 143,305 | 172,746 | 226,410 | 274,548   | 300,945   |
| Grand Total                  | 195,076 | 211,924 | 225,025 | 285,117 | 335,845 | 377,262 | 469,784 | 628,671 | 638,738 | 820,758 | 1,037,737 | 1,107,392 |

Source of information: Statistic section, Tourist Organization of Thailand

Method of collection: Frontier Check (by Immigration Division, Police Department)



TABLE 3 Market ratios of arrivals in Thailand, for selected countries (1964, 1969, 1974)

| Country                 | Popu-<br>lation<br>Mill. | Residents<br>Travelling<br>Overseas<br>Thous. | Arrivals in Thailand |                     |         | Ratio       |             | Market Ratio<br>1974 |                       |
|-------------------------|--------------------------|-----------------------------------------------|----------------------|---------------------|---------|-------------|-------------|----------------------|-----------------------|
|                         |                          |                                               | Thous.               |                     |         | 74/<br>1964 | 74/<br>1969 | per<br>1,000<br>Pop. | per<br>1,000<br>Trav. |
|                         |                          |                                               | 1964                 | 1969                | 1974    |             |             |                      |                       |
| Total                   | 3,800.0                  | 208,000                                       | 211.9                | 469.7               | 1,107.4 | 5.3         | 2.3         | 0.29                 | 5.30                  |
| USA                     | 210.3                    | 23,800                                        | 64.6                 | 133.3               | 156.8   | 2.4         | 1.2         | 0.75                 | 6.59                  |
| Canada                  | 22.1                     | 9,995                                         | 2.6                  | 5.5                 | 10.0    | 3.8         | 1.8         | 0.45                 | 1.00                  |
| Europe                  | 472.0                    |                                               | 38.6                 | 103.7               | 288.6   | 7.5         | 2.8         | 0.62                 |                       |
| Germany                 | 62.0                     |                                               | 6.1                  | 20.2                | 69.4    | 11.4        | 3.4         | 1.12                 |                       |
| Great Britain           | 65.0                     | 11,000                                        | 15.9                 | 31.3                | 65.4    | 4.1         | 2.1         | 1.16                 | 5.95                  |
| France                  | 52.2                     |                                               | 7.2                  | 12.7                | 42.6    | 5.9         | 3.4         | 0.81                 |                       |
| Scandinavia             | 21.8                     |                                               | 2.3                  | 11.8                | 25.1    | 10.3        | 2.1         | 1.15                 |                       |
| Switzerland             | 6.3                      |                                               | 2.0                  | 8.1                 | 26.4    | 13.2        | 3.3         | 4.19                 |                       |
| Others                  | 27.4                     |                                               | 0.5                  | 2.0                 | 59.7    | 11.8        | 3.0         | 0.22                 |                       |
| Japan                   | 108.4                    | 2,900                                         | 15.2                 | 42.9                | 132.7   | 8.8         | 3.1         | 1.22                 | 45.8                  |
| Australia & New Zealand | 16.1                     | 850                                           | 6.0                  | 25.7                | 83.4    | 13.9        | 3.2         | 5.18                 | 83.4                  |
| Total Overseas          | ..                       | ..                                            | 158.6                | 378.3               | 806.5   | 5.1         | 2.1         | ..                   | ..                    |
| Neighbouring Countries  |                          |                                               | (53.3)               | (91.5) <sup>a</sup> | 300.9   | 5.6         | 3.3         | ..                   | ..                    |
| Malaysia                | 11.8                     |                                               | 40.3                 | 59.6                | 197.5   | 4.9         | 3.4         | 16.74                |                       |
| Burma                   | 29.0                     |                                               | 1.2                  | 2.3                 | 7.3     | 6.1         | 3.2         | 0.25                 |                       |
| Singapore               | 2.2                      |                                               | ..                   | 9.6                 | 39.6    | -           | 4.1         | 18.00                |                       |
| Laos                    | 3.1                      |                                               | 8.8                  | 16.0                | 26.6    | 3.0         | 1.7         | 8.58                 |                       |
| Khmer and Vietnam       | 6.0                      |                                               | (3.0)                | (4.0) <sup>a</sup>  | 29.9    | 9.9         | 7.4         | 4.98                 |                       |

<sup>a</sup> Exclude Land Visitors from Cambodia

Source: Tourist Organization of Thailand/NTD (1975), p. 13

TABLE 4 Relative share and growth rate of visitor flows from selected countries, 1974

| Country      | Share in tourist<br>flow to Thailand<br>% of total 1974 | Growth over<br>4 years<br>in % | Growth<br>1973-74<br>in % |
|--------------|---------------------------------------------------------|--------------------------------|---------------------------|
| Germany      | 6                                                       | 25                             | + 10.7                    |
| UK           | 6                                                       | 16                             | + 12.2                    |
| France       | 4                                                       | 19                             | - 5.4                     |
| Italy        | 2                                                       | 21                             | + 19.2                    |
| Switzerland  | 2                                                       | 20                             | + 10.9                    |
| Total Europe | 26                                                      | 19                             | + 7.6                     |
| USA          | 14                                                      | 0                              | - 2.9                     |
| Japan        | 12                                                      | 30                             | - 5.4                     |
| Australia    | 7                                                       | 28                             | + 57.2                    |
| China        | 4                                                       | 26                             | + 23.9                    |
| India        | 2                                                       | 0                              | + 15.2                    |
| Malaysia     | 18                                                      | 17                             | + 3.5                     |
| Singapore    | 4                                                       | 36                             | + 24.8                    |
| Khmer Rep.   | 2                                                       | 55                             | + 56.3                    |
| Laos         | 2                                                       | 7                              | - 11.8                    |

Source: Tourist Organization of Thailand/NTD (1975), p. 13

TABLE 5 Visitors to Thailand: Ranking of selected originating countries, 1973, 1974, and January - May 1975

| Year<br>Rank | 1973              | 1974              | I - V 1975        |
|--------------|-------------------|-------------------|-------------------|
|              | Country           | Country           | Country           |
| 1.           | Japan             | Japan             | Japan             |
| 2.           | USA               | USA               | USA               |
| 3.           | Germany           | Germany           | Germany           |
| 4.           | Great Britain     | Australia         | Great Britain     |
| 5.           | France            | Great Britain     | Australia         |
| 6.           | Australia         | Republic of China | Republic of China |
| 7.           | Republic of China | France            | France            |
| 8.           | Switzerland       | Switzerland       | Switzerland       |
| 9.           | India             | Italy             | Italy             |
| 10.          | Italy             | Singapore         | Singapore         |
| 11.          | Singapore         | Malaysia          | Malaysia          |
| 12.          | Malaysia          | India             | India             |

Source: Statistical Section, Tourist Organization of Thailand  
Method of Collection: Frontier Check by Immigration Division, Police Department

TABLE 6 Mode of transportation by which visitors arrived 1973

| Mode    | Percentage of total flow |
|---------|--------------------------|
| by air  | 74                       |
| by land | 25                       |
| by sea  | 1                        |

Source: Divison of Immigration

TABLE 7 Modes of transport used by arriving travellers from oversea and from neighbouring countries (1973)

| COUNTRY                   | Total no of visitors | % arriving by air |
|---------------------------|----------------------|-------------------|
| Europe                    | 269,000              | 96                |
| North America             | 170,000              | 91                |
| Japan                     | 152,000              | 98                |
| Australia/<br>New Zealand | 54,000               | 89                |
| Malaysia                  | 191,000              | 9                 |
| Singapore                 | 32,000               | 53                |

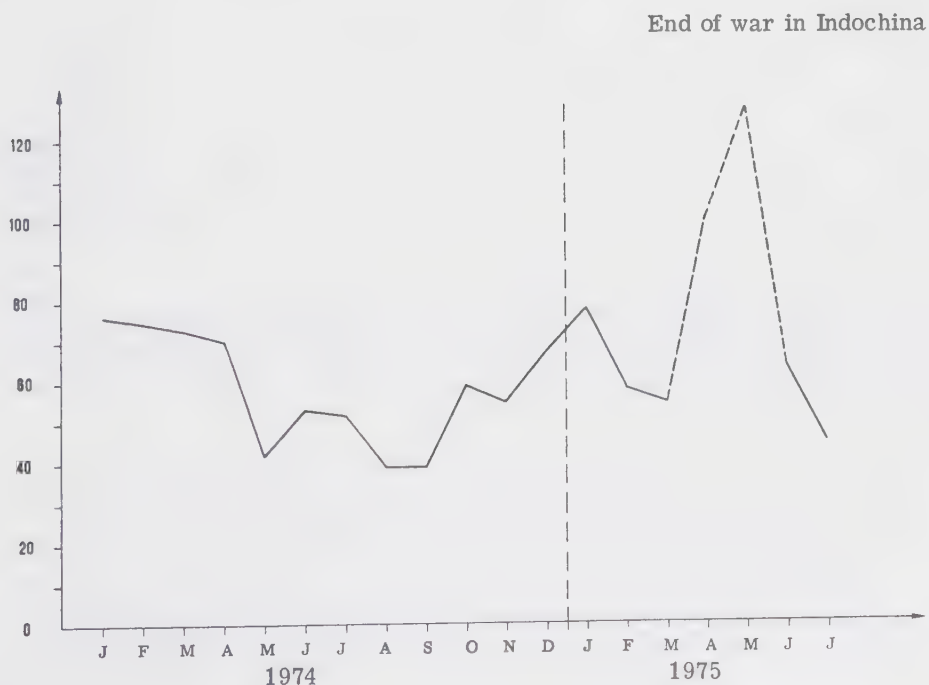
Source: Immigration Division/Police Department

**TABLE 8** Aircraft and passenger movements, Bangkok International Airport,  
1961 - June, 1975

| Year     | Aircrafts  |          |          | Passengers (scheduled and charter) |            |         |
|----------|------------|----------|----------|------------------------------------|------------|---------|
|          | Departures | Arrivals |          | Arrivals                           | Departures | Transit |
|          |            | Total    | Charters |                                    |            |         |
| 1961     | 9,071      | 9,095    |          | 165,805                            | 162,407    | 144,621 |
| 1962     | 9,437      | 9,474    |          | 186,972                            | 182,775    | 164,845 |
| 1963     | 9,932      | 9,922    |          | 208,170                            | 207,054    | 190,796 |
| 1964     | 10,286     | 10,262   |          | 244,598                            | 249,630    | 219,399 |
| 1965     | 11,306     | 11,245   |          | 274,864                            | 272,433    | 226,464 |
| 1966     | 14,042     | 14,002   |          | 337,090                            | 330,002    | 247,417 |
| 1967     | 17,754     | 17,754   |          | 443,727                            | 434,877    | 276,395 |
| 1968     | 18,846     | 18,814   |          | 515,329                            | 512,296    | 331,773 |
| 1969     | 20,970     | 21,002   |          | 629,733                            | 633,577    | 376,474 |
| 1970     | 23,375     | 23,376   |          | 760,954                            | 768,215    | 490,142 |
| 1971     | 24,415     | 24,412   |          | 750,100                            | 751,139    | 574,419 |
| 1972     | 25,284     | 25,278   |          | 909,034                            | 904,660    | 741,081 |
| 1973     | 26,780     | 26,789   |          | 1,104,273                          | 1,101,681  | 896,343 |
| 1974     | 25,922     | 25,946   | 700      | 1,159,570                          | 1,168,153  | 880,966 |
| I-V 1975 | 12,711     | 12,736   | 483      | 629,934                            | 645,950    | 425,645 |

Source: Department of Aviation, Ministry of Communications.

**FIGURE 1** Number of charter flight arrivals, Bangkok International Airport, January 1974 -  
July 1975



Source: Department of Aviation, Ministry of Communications.



TABLE 9 Peak and trough months of arrivals in selected years (cf. 1.2.)

| Series<br><br>Modes of<br>Transportation | Intrinsic Factor s'       |                   |                          |                   | Period     | Relative Contribution<br>of Seasonality to<br>Variance % |
|------------------------------------------|---------------------------|-------------------|--------------------------|-------------------|------------|----------------------------------------------------------|
|                                          | Latest Year of the series |                   | First Year of the series |                   |            |                                                          |
|                                          | Peak                      | Trough            | Peak                     | Trough            |            |                                                          |
| By Air                                   | Feb 109                   | Jun 84            | Oct 111                  | Jan ) 89<br>Jun ) | 69 - VI 74 | 70                                                       |
| By Land                                  | Dec 122                   | Feb ) 88<br>Oct ) | Dec 124                  | Feb 87            | 70 - VI 74 | 69                                                       |
| By Sea                                   | Mar 297                   | Sep 36            | Mar 364                  | Sep 35            | 70 - VI 74 | 34                                                       |
| Total                                    | Dec 111                   | Jun 88            | Oct 111                  | Jan 83            | 64 - 74    | 72                                                       |
| From USA                                 | Oct 127                   | Jan 69            | Jul ) 127<br>Oct )       | Jan 64            | 63 - IX 71 | 85                                                       |

Source: Tourist Organization of Thailand (1975): TOT sources 3.

TABLE 10 Seasonal pattern in foreign tourism visits to Thailand (1974), for selected countries

| Category      | Low<br>% of total<br>annual flow<br>per category | Month    | High<br>% of total<br>annual flow<br>per category | Month    |
|---------------|--------------------------------------------------|----------|---------------------------------------------------|----------|
| USA           | 6.5                                              | December | 8.9                                               | August   |
| Japan         | 5.4                                              | June     | 13.0                                              | January  |
| Germany       | 4.8                                              | May      | 13.5                                              | March    |
| Switzerland   | 4.4                                              | June     | 15.9                                              | January  |
| France        | 5.3                                              | May      | 13.1                                              | August   |
| Great Britain | 6.3                                              | May      | 10.9                                              | December |
| Italy         | 4.3                                              | June     | 11.6                                              | December |
| Australia     | 6.1                                              | March    | 12.7                                              | January  |

The last and the first few months of the year are obviously the most attractive for tourists. The fluctuations may become somewhat more pronounced, resulting in a peak in December and a drop during the wet season, when the European countries, which show a stronger fluctuation seasonal pattern, will increase their market share.

TABLE 11 Average duration of stay, 1960 - 1973, in days

| Year | Days |
|------|------|
| 1960 | 3.0  |
| 1961 | 3.0  |
| 1962 | 3.0  |
| 1963 | 5.7  |
| 1964 | 4.5  |
| 1965 | 4.8  |
| 1966 | 5.0  |
| 1967 | 4.6  |
| 1968 | 4.23 |
| 1969 | 4.88 |
| 1970 | 4.82 |
| 1971 | 4.87 |
| 1972 | 4.93 |
| 1973 | 4.70 |

Source: Statistical section, Tourist Organization of Thailand

Considering an average length of holiday of approx. 15 - 20 days for large numbers of tourists, these figures indicate that most of them visit Thailand on a multi-destination tour.

TABLE 12 Duration of stay by tourists from selected countries, 1968/72/73/74

| Country        | Year<br>1968 | Year<br>1972 | Year<br>1973 | Year<br>1974 |
|----------------|--------------|--------------|--------------|--------------|
| USA            | 4.2          | 4.1          | 4.1          | 3.9          |
| Germany        | 4.2          | 4.4          | 4.9          | 4.5          |
| Switzerland    | 4.4          | 6.8          | 5.5          | 4.6          |
| France         | 3.9          | 4.1          | 4.7          | 4.4          |
| Italy          | 4.1          | 3.7          | 4.4          | 4.5          |
| Japan          | 3.8          | 4.0          | 3.9          | 4.2          |
| Australia      | 3.5          | 4.7          | 4.9          | 4.1          |
| Total overseas | 3.8          | 4.3          | 4.2          | 4.5          |

Source: Statistical Section, Tourist Organization of Thailand, based on data of Frontier desk, Immigration Division, Police Department.

As a result of the analysis the visitors can be divided into five different groups, according to their duration of stay viz. those staying

- one day, who predominantly visit Bangkok (or, where Malaysian tourists are concerned, the area near the southern border);
- two days, who make a few excursions in the surroundings of Bangkok;
- three, four or five days, able to make tours in the wider surroundings of Bangkok or further;
- five to ten days, able to make tours to more distant destinations in Thailand or to spend a few days in a resort.

Visitors staying longer than ten days can combine their trips with a stay in a resort (e.g. groups of Europeans coming on fortnightly charter flights).

On the average 37.5 % stay one or two days at present, 37.3 % three to five days and 25.2 % longer than five days. (

## 1.2. Time series analysis for Switzerland and four other western European countries

### 1.21. Introduction

The X-11 program is divided into seven major parts:

- (1) Prior adjustments, if any
- (2) Preliminary estimates of irregular component weights and regression trading day factors
- (3) Final estimates of above
- (4) Final estimates of seasonal, trend-cycle and irregular components
- (5) Analytical tables
- (6) Summary measures
- (7) Charts

The sigma limits for graduating extreme values are 1.5 and 2.5. The moving average for the variable trend cycle routine is the 13-term Henderson.

In the following sections, the theoretical aspects, as far as they are concerned in the presentations hereafter, are presented. The Swiss time series is thereby treated as demonstration series. All figures mentioned in the theoretical text refer therefore to this series.

### 1.22. Summary of theoretical aspects of the X-11 multiplicative seasonal adjustment program

- (1) Average percent change without regard to sign (amplitude)

These are calculated for the main components over a span "s" of 1 to 12 months <sup>(t)</sup>, as a measure of their variation: these measures are calculated for O, A (= CI), I, C, S, P, D, C<sup>(M)</sup> and also for O<sup>(m)</sup>, A<sup>(m)</sup>, I<sup>(m)</sup> after modification of the extreme values.

$\bar{O}_s$  symbolises the average percent change in the original data O over a span of s months

$$\sum_{t=s+1}^N |d_s O_t| / (n - s):$$

this measure generally reaches its highest value for a span of 6 months because it is affected by the greatest differences in the seasonal factors over this span.

The average changes in the trend C<sub>s</sub> and also in the s.a.d. A<sub>s</sub> generally accumulate in accordance with increased span (of s months), while the average changes in the irregularity I<sub>s</sub> are similar over various spans s (especially if the I<sub>t</sub> are random and independent): it is affected by the unusual changes U.

For definitions and explanations, compare pp. 16-17.

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X-11 Multiplicative Seasonal Adjustment Program, U.S. Bureau of Census, modified by the ISRAEL CENTRAL BUREAU OF STATISTICS, July 17, 1972.

The time series were analyzed at the Israel Central Bureau of Statistics on December 15, 1975. Presented here are the parts (6) Summary measures and (7) Charts of the series of five European countries:

- (1) Switzerland
- (2) German Federal Republic
- (3) France
- (4) Belgium
- (5) Italy

The period covered is from July, 1971, to June, 1975.



## (2) Relative contributions of the components to variance in the original series

The sum of the squares of the average changes of the abovementioned components (without regard to sign)  $\bar{O}_s'^2$  is approximately equal to the square of the average change of the original data (for each span s):

$$\bar{O}_s'^2 = \bar{I}_s^2 + \bar{O}_s^2 + \bar{S}_s^2 + \bar{P}_s^2 + \bar{D}_s^2 = \bar{O}_s^2$$

The ratio between the average variation of each component to that of the total of the components is a convenient measure of the relative importance of each component in contributing to the changes over a span of s months, on average over the period analysed: -

$$S_s^R = \bar{S}_s^2 / \bar{O}_s'^2, \quad C_s^R = \bar{C}_s^2 / \bar{O}_s'^2, \quad (u)$$

These ratios are shown in the table for spans of one month up to 7 months and also for 9, 11 and 12 months.

The ratio of  $\bar{O}_s'^2 / \bar{O}_s^2$  is a measure of the goodness of the approximation of this formula.

These contributions for the span of one month are shown in the tables for each series.

As regards the contributions to changes for other spans, it is possible to see the gradual growth of the relative contribution of the trend and the diminution of the relative contribution of the irregularity, generally up to a span of 4 to 6 months. For the span of 12 months the contribution of the trend is of major importance, 90.6 % in the Swiss series used as the example. the irregularity contributed 9.4 % of the average changes. Festival adjustments and seasonality do not contribute any proportion. (see Table 13, p. 18)

## (3) Average duration of run for main components (A.D.R.)

This is the number of consecutive times (months) in which the component operates in the same direction (an absence of change is also considered as the same direction): it is calculated for A (=CI), I, C,  $C^{(M)}$ . For completely independent random series (i.e. with no intermonth correlation), the A.D.R. would be 1.50 months (see, e.g. KENDALL and STUART, 1966). The irregular factors I in every series reverse their direction at frequent intervals. The A.D.R. (I) in the series was 1.7 months, which was composed of 2.0 months (on the average) for U and 1.4 months for R. The stability of the estimated trend-cycle C can be tested by its A.D.R. (in this series 6.71 months). The utility of the s.a.d. A and of the short-term trend  $C^{(M)}$  in diagnosing from month-to-month the considerable changes in the trend-cycle are measured by their A.D.R.: the A.D.R. of  $d_2B'$  is higher on the average.

## (4) I/C ratio for s months span

As has been pointed out, the changes in the irregular factors I are similar to random variations (apart from unusual periods U) and therefore largely off-set each other in normal periods (taking the sign into account) and therefore  $I_s$  are of similar magnitude for all s, while the changes  $O_s$  in the trend-cycle C are generally cumulative in accordance with the span s (except for a cyclical turn). The ratio of these average changes is shown for spans of 1 to 12 months. In the series, the ratio fell from 3.6 for the span of one month (i.e. the irregularity causes changes four times those caused by the trend, on average) down to 0.96 for 4 months and to 0.32 for 12 months.

(5) M.C.D. - Months for Cyclical Dominance

This important measure is defined as the minimum number of months required (on the average) for the cumulative changes in the trend-cycle to dominate the effect of the irregular factors. The M.C.D. is therefore the first span  $s = m$  for which  $\bar{I}_m / \bar{C}_m < 1.0$ . The M.C.D. measures the degree of the "smoothness" of the series and its sensitivity in revealing changes in the trend-cycle despite the disturbance caused from month to month by the irregular factors (but without distinguishing between U and R). For the series the value of the M.C.D. is 4: its value is 6 for series with higher irregularity, e.g. tourists arriving by sea and 1 for series possessing a strong and monotonic trend with low irregularity, such as the means of payment series. This measure was developed by SHISKIN (1957) in order to aid the determination of cyclical turning points in current economic series, and is used for comparisons over the span of  $m$  months, in addition to serving as the basis for the "short-term trend"  $C^{(M)}$  described in step F 1.

(6) Average percent change with regard to sign

Average percent change with regard to sign and also standard deviation (S.D.): these measures are calculated for the main components O, I, C, S, A,  $C^{(M)}$  for spans of 1 to 12 months.

Definitions and explanations for Tables 13-17 and Figures 2-6:

B 1  $O^{PD}$  (or  $O^P$ ) - Prior adjusted original series

This step presents the series after adjustments for the effect of variations in Festival dates and other adjustments, but in the present study no adjustments were made.

D 10 S - Final seasonal factors

These factors are obtained by smoothing the SI ratios for each month by " $|3| \times |5|$ " (seven terms and weighted) moving averages over the years. The seasonal factors are expressed in terms of the average month = 100 %; in fact, the annual average of the seasonal factors (which is printed at the side of the table as a check), may differ slightly from 100 % because of rounding-off, although a standardization procedure is applied.

- D 11      A - Seasonally adjusted data (s.a.d.) =  $O^P/S = CI$
- The original data are divided by the appropriate seasonal factors (taking into account prior adjustments P and/or D). These data comprise not only the trend-cycle but also irregular factors R and unusual factors U (if they have not been excluded from the series in advance), and they therefore may fluctuate, though generally less than the original series. There may be differences between the annual totals in the original series O and in the seasonally-adjusted series A.
- The s.a.d. series is liable to alter to some extent after re-computing the seasonal factors when an additional year (or two years) of data are introduced into the analysis: this mainly happens when the seasonality is not stable over the years. There are various methods for smoothing the s.a.d., which include:
- (1) The "Henderson" moving average (step D 12),
  - (2) the M.C.D. (Months for Cyclical Dominance) moving average of  $m = 1$  to 6 terms, with uniform weights (see step F 1)
- (For other methods, see BARON, 1973, p. 72)
- F 1      C<sup>(M)</sup> - M.C.D. moving average, short-term trend =  $|m| A$
- After determining the M.C.D. ad m months, an approximation to the trend-cycle is calculated by the M.C.D. moving average of the s.a.d. A = CI in order to smooth them, each month being given an equal weight.
- This moving average is used for current analysis in view of the fact that it is easy to compute (as compared to the Henderson moving average which is calculated on the basis of 13 terms with a complicated weighted pattern) and lags only 2 or 3 months after the current data.
- For its main defects see BARON, p. 75
- D 12      C - Trend-cycle =  $|H| A^m$
- A smooth curve is computed from modified s.a.d.  $A^m(q)$  by a weighted moving average (the Henderson 13-term). Unusual values among the s.a.d. A are therefore modified to some extent, then smoothed by a comparatively long moving average designed to minimize third differences. A "ripple" may frequently be seen in this trend-cycle although C is intended to stress the normal trend-cycle, while A and B (or B') will always indicate an unusual period.
- D 13      I - Irregular factors =  $A/C$
- These are obtained by dividing the s.a.d. A (Table D 11) by the Henderson estimate of trend C (Table D 12) and expressed in percentages. According to this new approach, this irregularity is composed of:
- (1) The effects of unusual periods - U,
  - (2) Residual irregularity - R.
- The X-11 program does not distinguish between these factors.
- The computer program also prints standard deviations of the irregular factors (I) for each year and for each month, which show the periods with the greatest variations in this factor.



1.23. Results for five European countries, period of investigation July 1971 - June 1975

TABLE 13 Summary measures: Time series analysis for arrivals from Switzerland, period covered: July 1971 - June 1975

| SUMMARY MEASURES                                                                       |       |        |       |       |       |        |        |       |       |       |       |
|----------------------------------------------------------------------------------------|-------|--------|-------|-------|-------|--------|--------|-------|-------|-------|-------|
| 15/12/75                                                                               |       |        |       |       |       |        |        |       |       |       |       |
| SERIES NO. 1                                                                           |       |        |       |       |       |        |        |       |       |       |       |
| P.11, SERIES NO. 001                                                                   |       |        |       |       |       |        |        |       |       |       |       |
| AVERAGE PER CENT CHANGE WITHOUT REGARD TO SIGN-OVER INDICATED SPAN                     |       |        |       |       |       |        |        |       |       |       |       |
| SPAN                                                                                   | F1    | F2     | F3    | F4    | F5    | F6     | F7     | F8    | F9    | F10   | F11   |
| MONTHS                                                                                 | 1     | 2      | 3     | 4     | 5     | 6      | 7      | 8     | 9     | 10    | 11    |
| 1                                                                                      | 24.49 | 11.45  | 10.30 | 2.89  | 20.37 | 0.00   | 0.00   | 0.00  | 4.62  | 28.94 | 6.64  |
| 2                                                                                      | 38.93 | 14.82  | 11.33 | 8.66  | 32.99 | 0.00   | 0.00   | 0.00  | 7.83  | 36.85 | 9.76  |
| 3                                                                                      | 49.96 | 16.65  | 10.50 | 8.72  | 40.76 | 0.00   | 0.00   | 0.00  | 10.96 | 47.23 | 11.30 |
| 4                                                                                      | 61.53 | 18.36  | 11.10 | 11.56 | 48.03 | 0.00   | 0.00   | 0.00  | 13.00 | 55.97 | 14.07 |
| 5                                                                                      | 71.24 | 20.36  | 11.42 | 14.32 | 54.64 | 0.00   | 0.00   | 0.00  | 15.48 | 65.82 | 17.00 |
| 6                                                                                      | 76.95 | 22.34  | 10.45 | 16.08 | 57.01 | 0.00   | 0.00   | 0.00  | 17.50 | 69.73 | 18.78 |
| 7                                                                                      | 77.32 | 24.18  | 9.81  | 19.62 | 57.01 | 0.00   | 0.00   | 0.00  | 19.36 | 71.77 | 20.70 |
| 8                                                                                      | 66.10 | 20.07  | 8.83  | 22.20 | 43.84 | 0.00   | 0.00   | 0.00  | 25.02 | 66.55 | 26.70 |
| 9                                                                                      | 44.22 | 16.80  | 10.49 | 11.89 | 21.38 | 0.00   | 0.00   | 0.00  | 32.71 | 40.67 | 33.48 |
| 10                                                                                     | 41.72 | 14.50  | 11.36 | 35.38 | 2.26  | 0.00   | 0.00   | 0.00  | 36.29 | 37.70 | 37.58 |
| 11                                                                                     |       |        |       |       |       |        |        |       |       |       |       |
| 12                                                                                     |       |        |       |       |       |        |        |       |       |       |       |
| RELATIVE CONTRIBUTIONS OF COMPONENTS TO VARIANCE IN ORIGINAL SERIES                    |       |        |       |       |       |        |        |       |       |       |       |
| SPAN                                                                                   | D11   | D12    | D10   | A2    | C18   | RATIO  |        |       |       |       |       |
| MONTHS                                                                                 | 1     | 2      | 3     | 4     | 5     | (X100) | TOTAL  | 1     | 2     | 3     | 4     |
| 1                                                                                      | 20.04 | 1.57   | 78.43 | 0.00  | 0.00  | 88.95  | 100.00 | 88.95 |       |       |       |
| 2                                                                                      | 10.34 | 2.74   | 36.92 | 0.00  | 0.00  | 49.41  | 100.00 | 49.41 |       |       |       |
| 3                                                                                      | 5.97  | 4.11   | 39.92 | 0.00  | 0.00  | 74.00  | 100.00 | 74.00 |       |       |       |
| 4                                                                                      | 4.40  | 5.21   | 39.48 | 0.00  | 0.00  | 67.50  | 100.00 | 67.50 |       |       |       |
| 5                                                                                      | 3.71  | 6.22   | 30.46 | 0.00  | 0.00  | 64.75  | 100.00 | 64.75 |       |       |       |
| 6                                                                                      | 3.03  | 7.01   | 39.10 | 0.00  | 0.00  | 62.75  | 100.00 | 62.75 |       |       |       |
| 7                                                                                      | 2.57  | 10.31  | 37.12 | 0.00  | 0.00  | 62.44  | 100.00 | 62.44 |       |       |       |
| 8                                                                                      | 2.06  | 24.24  | 72.81 | 0.00  | 0.00  | 83.84  | 100.00 | 83.84 |       |       |       |
| 9                                                                                      | 3.35  | 13.32  | 28.80 | 0.00  | 0.00  | 76.33  | 100.00 | 76.33 |       |       |       |
| 10                                                                                     | 4.35  | 11.64  | 0.00  | 0.00  | 0.00  |        | 100.00 |       |       |       |       |
| 11                                                                                     |       |        |       |       |       |        |        |       |       |       |       |
| 12                                                                                     |       |        |       |       |       |        |        |       |       |       |       |
| AVERAGE DURATION OF PUN                                                                |       |        |       |       |       |        |        |       |       |       |       |
| SPAN                                                                                   | D11   | D12    | D10   | A2    | C18   | RATIO  |        |       |       |       |       |
| MONTHS                                                                                 | 1     | 2      | 3     | 4     | 5     | (X100) | TOTAL  | 1     | 2     | 3     | 4     |
| 1                                                                                      | 1.96  | 1.74   | 6.71  | 3.14  |       |        |        |       |       |       |       |
| 2                                                                                      |       |        |       |       |       |        |        |       |       |       |       |
| 3                                                                                      |       |        |       |       |       |        |        |       |       |       |       |
| 4                                                                                      |       |        |       |       |       |        |        |       |       |       |       |
| 5                                                                                      |       |        |       |       |       |        |        |       |       |       |       |
| 6                                                                                      |       |        |       |       |       |        |        |       |       |       |       |
| 7                                                                                      |       |        |       |       |       |        |        |       |       |       |       |
| 8                                                                                      |       |        |       |       |       |        |        |       |       |       |       |
| 9                                                                                      |       |        |       |       |       |        |        |       |       |       |       |
| 10                                                                                     |       |        |       |       |       |        |        |       |       |       |       |
| 11                                                                                     |       |        |       |       |       |        |        |       |       |       |       |
| 12                                                                                     |       |        |       |       |       |        |        |       |       |       |       |
| I/O RATIO FOR MONTHS SPAN                                                              |       |        |       |       |       |        |        |       |       |       |       |
| SPAN                                                                                   | F1    | F2     | F3    | F4    | F5    | F6     | F7     | F8    | F9    | F10   | F11   |
| MONTHS                                                                                 | 1     | 2      | 3     | 4     | 5     | 6      | 7      | 8     | 9     | 10    | 11    |
| 1                                                                                      | 3.53  | 1.04   | 1.31  | .98   | .77   | .62    | .50    | .37   | .35   | .31   | .33   |
| 2                                                                                      |       |        |       |       |       |        |        |       |       |       |       |
| 3                                                                                      |       |        |       |       |       |        |        |       |       |       |       |
| 4                                                                                      |       |        |       |       |       |        |        |       |       |       |       |
| 5                                                                                      |       |        |       |       |       |        |        |       |       |       |       |
| 6                                                                                      |       |        |       |       |       |        |        |       |       |       |       |
| 7                                                                                      |       |        |       |       |       |        |        |       |       |       |       |
| 8                                                                                      |       |        |       |       |       |        |        |       |       |       |       |
| 9                                                                                      |       |        |       |       |       |        |        |       |       |       |       |
| 10                                                                                     |       |        |       |       |       |        |        |       |       |       |       |
| 11                                                                                     |       |        |       |       |       |        |        |       |       |       |       |
| 12                                                                                     |       |        |       |       |       |        |        |       |       |       |       |
| MONTHS FOR CYCLICAL DOMINANCE                                                          |       |        |       |       |       |        |        |       |       |       |       |
| AVERAGE PER CENT CHANGE WITH REGARD TO SIGN AND STANDARD DEVIATION OVER INDICATED SPAN |       |        |       |       |       |        |        |       |       |       |       |
| SPAN                                                                                   | F1    | F2     | F3    | F4    | F5    | F6     | F7     | F8    | F9    | F10   | F11   |
| MONTHS                                                                                 | 1     | 2      | 3     | 4     | 5     | 6      | 7      | 8     | 9     | 10    | 11    |
| 1                                                                                      | 5.55  | 31.21  | 1.10  | 15.73 | 2.23  | 3.18   | 2.13   | 25.77 | 3.36  | 15.10 | 2.32  |
| 2                                                                                      | 12.50 | 43.67  | 1.11  | 15.17 | 4.57  | 6.26   | 5.40   | 35.00 | 5.49  | 17.03 | 4.88  |
| 3                                                                                      | 21.74 | 56.12  | 1.64  | 14.75 | 6.90  | 8.34   | 9.40   | 43.23 | 8.87  | 24.77 | 7.34  |
| 4                                                                                      | 29.59 | 71.26  | 1.42  | 15.36 | 9.65  | 12.23  | 14.67  | 55.62 | 11.15 | 31.15 | 9.77  |
| 5                                                                                      | 37.73 | 83.34  | 1.72  | 13.92 | 11.05 | 14.84  | 16.30  | 62.72 | 13.33 | 34.53 | 12.26 |
| 6                                                                                      | 42.20 | 92.48  | 1.46  | 16.98 | 14.52 | 17.24  | 18.40  | 67.55 | 16.19 | 25.52 | 14.52 |
| 7                                                                                      | 44.72 | 103.16 | 1.08  | 14.35 | 17.27 | 19.55  | 19.40  | 73.44 | 18.48 | 25.22 | 17.21 |
| 8                                                                                      | 37.24 | 86.68  | .11   | 13.02 | 23.66 | 24.24  | 10.47  | 56.16 | 28.59 | 23.73 | 24.05 |
| 9                                                                                      | 35.43 | 56.37  | .50   | 14.48 | 31.19 | 26.02  | 2.17   | 27.10 | 32.18 | 36.04 | 31.37 |
| 10                                                                                     | 36.69 | 38.83  | .04   | 16.02 | 35.07 | 31.13  | .97    | .18   | 36.55 | 38.73 | 34.00 |
| 11                                                                                     |       |        |       |       |       |        |        |       |       |       |       |
| 12                                                                                     |       |        |       |       |       |        |        |       |       |       |       |

FIGURE 2 Final seasonally adjusted series and final trend cycle for arrivals from Switzerland

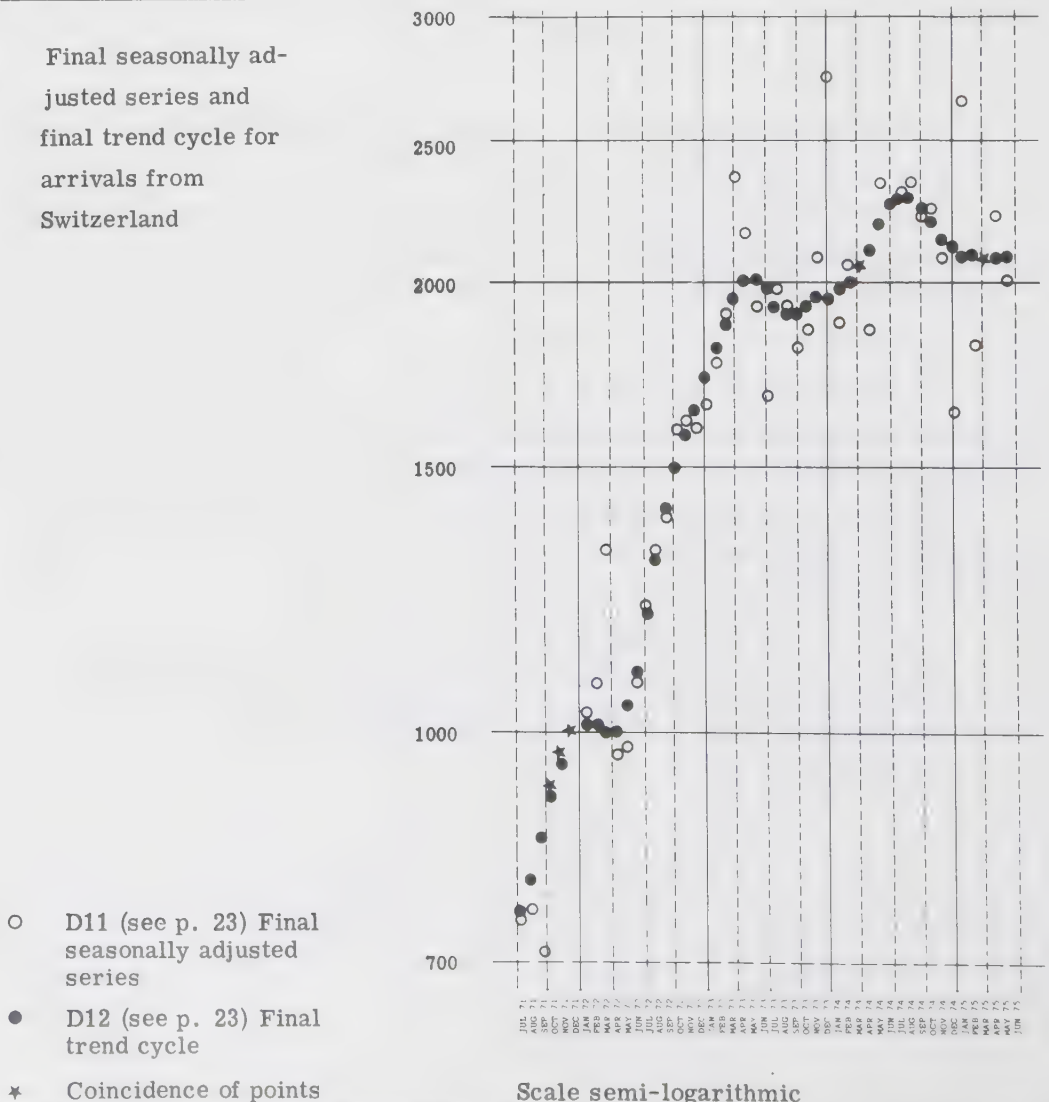


TABLE 14      Summary measures: Time series analysis for arrivals from Germany,  
period covered: July 1971 - June 1975

15/12/75

SERIES NO. 2

8.11, SERIES PC 02

SUMMARY OF SURF

AVERAGE PER CENT

CHANGE WITHOUT REGARD TO SIGN OVER INDICATED SPAN

MONTHS

AVG

S.D.

AVG

S.D.

AVG

S.D.

AVG

S.D.

AVG

S.D.

AVG

S.D.

AVG

S.D.

1

25.24

11.47

11.27

3.03

22.11

1.00

0.00

3.25

25.13

2.50

7.06

8.06

2

40.51

15.14

9.71

5.04

34.42

0.00

0.00

5.23

30.77

11.11

7.54

7.54

3

31.41

15.00

17.00

4.51

51.26

0.00

0.00

6.56

67.36

14.66

8.14

8.14

4

25.44

10.00

10.66

1.00

66.56

0.00

0.00

8.16

79.02

15.72

7.04

7.04

5

27.17

17.66

9.47

11.07

81.24

0.00

0.00

9.06

95.51

16.60

7.76

7.76

6

17.77

17.77

4.86

13.16

86.30

0.00

0.00

0.00

101.58

16.61

7.36

7.36

7

11.21

20.00

1.43

14.05

92.73

0.00

0.00

0.00

97.58

18.11

9.70

9.70

8

65.16

21.37

10.32

16.14

54.73

0.00

0.00

14.05

61.88

18.60

7.88

7.88

9

34.37

20.67

9.73

19.18

23.25

0.00

0.00

17.45

32.68

21.32

6.47

6.47

10

24.44

28.67

11.13

21.24

.57

0.00

0.00

18.90

23.90

24.02

8.60

8.60

RELATIVE CONTRIBUTIONS OF COMPONENTS TO VARIANCE IN ORIGINAL SPECIES

MONTHS

D13

D12

D11

D2

D13

TOTAL

RATIO (X100)

1

25.27

1.47

79.21

0.00

0.00

100.00

79.36

2

7.17

2.67

79.14

0.00

0.00

100.00

79.60

3

7.77

2.77

13.77

0.00

0.00

100.00

74.66

4

1.44

2.00

16.13

0.00

0.00

100.00

71.51

5

4.44

2.17

36.61

0.00

0.00

100.00

72.42

6

1.17

2.00

36.72

0.00

0.00

100.00

69.00

7

1.65

2.00

36.55

0.00

0.00

100.00

69.04

8

7.27

2.00

38.37

0.00

0.00

100.00

75.70

9

7.17

77.51

55.25

0.00

0.00

100.00

81.16

10

71.67

77.27

.05

0.00

0.00

100.00

81.45

AVERAGE PERCENT CHANGE WITH REGARD TO SIGN AND STANDARD DEVIATION OVER INDICATED SPAN

MONTHS

AVG

S.D.

AVG

S.D.

AVG

S.D.

AVG

S.D.

AVG

S.D.

AVG

S.D.

AVG

S.D.

1

6.37

32.47

.87

14.75

2.32

7.45

3.44

27.16

3.21

14.65

1.96

1.70

2

16.42

72.73

1.15

13.31

4.66

7.07

3.43

43.52

5.21

15.65

3.74

6.27

3

21.13

74.00

.86

12.67

5.90

10.48

17.66

61.22

8.04

17.85

5.37

6.47

4

42.37

43.00

1.00

10.00

10.00

10.00

25.77

72.95

10.64

21.74

7.00

10.11

5

60.27

11.38

.54

12.21

11.66

16.58

33.07

86.11

11.81

21.58

8.02

10.11

6

67.55

11.62

.54

11.00

12.12

16.73

26.81

92.57

12.85

21.44

3.26

11.00

7

127.40

12.73

1.43

14.42

13.33

16.88

34.79

92.96

15.07

20.61

10.61

11.00

8

37.11

11.98

.58

10.57

10.57

17.85

3.66

75.33

16.40

22.23

11.53

11.87

9

34.00

41.00

.86

10.57

10.10

17.85

3.66

30.30

20.18

21.55

17.23

16.41

10

22.37

77.05

1.30

15.30

21.24

10.03

3.66

.73

22.36

27.23

18.93

15.41

TABLE 15      Summary measures: Time series analysis for arrivals from France, period covered: July 1971 - June 1975

[illegible]

TABLE 16 Summary measures: Time series analysis for arrivals from Italy, period covered: July 1971 - June 1975

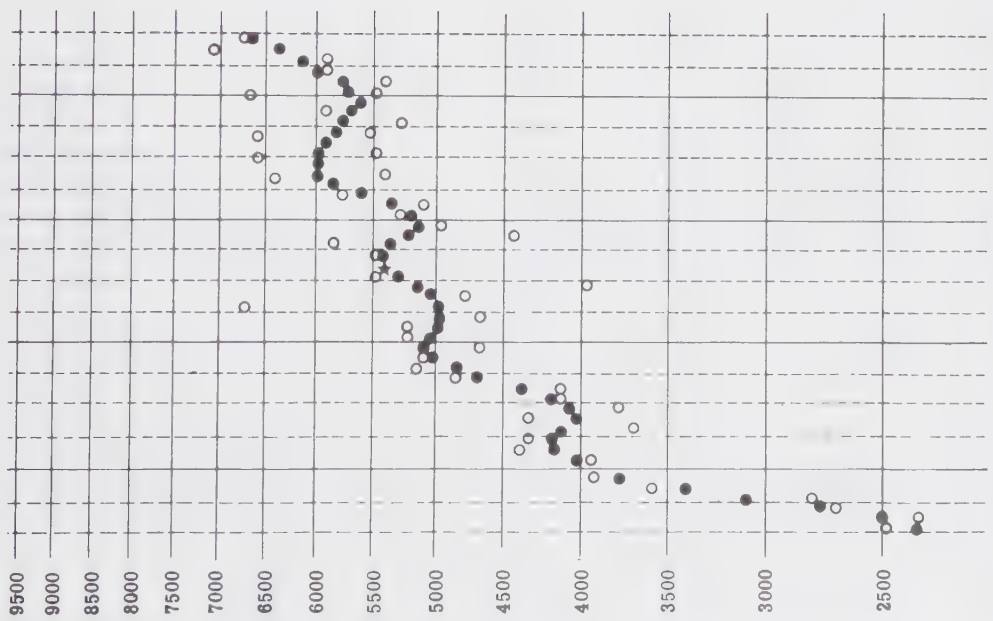
|                                                                                        |  |       |  |       |  |       |  |       |  |       |  |              |  |       |  |       |  |       |  |        |  |       |  |                     |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------------------------------------------------------------------|--|-------|--|-------|--|-------|--|-------|--|-------|--|--------------|--|-------|--|-------|--|-------|--|--------|--|-------|--|---------------------|--|--|--|--|--|--|--|--|--|--|--|
| 22/12/75                                                                               |  |       |  |       |  |       |  |       |  |       |  | SERIES NO. 4 |  |       |  |       |  |       |  |        |  |       |  | P.11, SERIES RC 004 |  |  |  |  |  |  |  |  |  |  |  |
| SUMMARY MEASURES                                                                       |  |       |  |       |  |       |  |       |  |       |  |              |  |       |  |       |  |       |  |        |  |       |  |                     |  |  |  |  |  |  |  |  |  |  |  |
| AVERAGE PER CENT CHANGE WITHOUT REGARD TO SIGN OVER INDICATED SPAN                     |  |       |  |       |  |       |  |       |  |       |  |              |  |       |  |       |  |       |  |        |  |       |  |                     |  |  |  |  |  |  |  |  |  |  |  |
| SPAN                                                                                   |  | J1    |  | U11   |  | D13   |  | D12   |  | D10   |  | A2           |  | C18   |  | F1    |  | E1    |  | E2     |  | E3    |  |                     |  |  |  |  |  |  |  |  |  |  |  |
| MONTHS                                                                                 |  | C     |  | C     |  | C     |  | C     |  | C     |  | P            |  | TU    |  | MCD   |  | MOD.0 |  | MOD.C1 |  | MOD.1 |  |                     |  |  |  |  |  |  |  |  |  |  |  |
| 1                                                                                      |  | 32.62 |  | 19.58 |  | 18.88 |  | 2.84  |  | 23.55 |  | 0.00         |  | 0.00  |  | 3.84  |  | 31.69 |  | 14.89  |  | 14.97 |  |                     |  |  |  |  |  |  |  |  |  |  |  |
| 2                                                                                      |  | 30.79 |  | 21.44 |  | 18.96 |  | 2.74  |  | 20.35 |  | 0.00         |  | 0.00  |  | 6.09  |  | 33.68 |  | 16.18  |  | 13.52 |  |                     |  |  |  |  |  |  |  |  |  |  |  |
| 3                                                                                      |  | 33.86 |  | 10.80 |  | 13.81 |  | 3.59  |  | 24.07 |  | 0.00         |  | 0.00  |  | 9.25  |  | 32.76 |  | 15.86  |  | 11.52 |  |                     |  |  |  |  |  |  |  |  |  |  |  |
| 4                                                                                      |  | 37.03 |  | 26.74 |  | 14.96 |  | 11.35 |  | 22.88 |  | 0.00         |  | 0.00  |  | 12.26 |  | 34.37 |  | 18.81  |  | 12.65 |  |                     |  |  |  |  |  |  |  |  |  |  |  |
| 5                                                                                      |  | 40.53 |  | 28.42 |  | 16.56 |  | 18.15 |  | 25.33 |  | 0.00         |  | 0.00  |  | 15.31 |  | 37.68 |  | 20.59  |  | 12.62 |  |                     |  |  |  |  |  |  |  |  |  |  |  |
| 6                                                                                      |  | 46.53 |  | 25.22 |  | 13.87 |  | 17.19 |  | 33.61 |  | 0.00         |  | 0.00  |  | 18.43 |  | 45.83 |  | 22.42  |  | 11.61 |  |                     |  |  |  |  |  |  |  |  |  |  |  |
| 7                                                                                      |  | 44.28 |  | 27.24 |  | 13.77 |  | 20.34 |  | 22.94 |  | 0.00         |  | 0.00  |  | 27.45 |  | 41.95 |  | 24.74  |  | 11.84 |  |                     |  |  |  |  |  |  |  |  |  |  |  |
| 8                                                                                      |  | 55.64 |  | 24.06 |  | 10.59 |  | 20.93 |  | 25.51 |  | 0.00         |  | 0.00  |  | 32.55 |  | 45.47 |  | 30.42  |  | 13.69 |  |                     |  |  |  |  |  |  |  |  |  |  |  |
| 9                                                                                      |  | 59.69 |  | 39.58 |  | 16.27 |  | 33.44 |  | 24.13 |  | 0.00         |  | 0.00  |  | 35.31 |  | 55.15 |  | 38.17  |  | 13.25 |  |                     |  |  |  |  |  |  |  |  |  |  |  |
| 10                                                                                     |  | 41.74 |  | 41.99 |  | 15.14 |  | 30.40 |  | 8.00  |  | 0.00         |  | 0.00  |  | 0.00  |  | 40.77 |  | 41.01  |  | 12.33 |  |                     |  |  |  |  |  |  |  |  |  |  |  |
| RELATIVE CONTRIBUTIONS OF COMPONENTS TO VARIANCE IN ORIGINAL SERIES                    |  |       |  |       |  |       |  |       |  |       |  |              |  |       |  |       |  |       |  |        |  |       |  |                     |  |  |  |  |  |  |  |  |  |  |  |
| SPAN                                                                                   |  | L13   |  | D12   |  | L10   |  | A2    |  | C18   |  | TOTAL        |  | RATIO |  |       |  |       |  |        |  |       |  |                     |  |  |  |  |  |  |  |  |  |  |  |
| MONTHS                                                                                 |  | P     |  | C     |  | C     |  | C     |  | TU    |  | (X100)       |  |       |  |       |  |       |  |        |  |       |  |                     |  |  |  |  |  |  |  |  |  |  |  |
| 1                                                                                      |  | 38.77 |  | 1.88  |  | 60.35 |  | 0.00  |  | 0.00  |  | 100.00       |  | 86.37 |  |       |  |       |  |        |  |       |  |                     |  |  |  |  |  |  |  |  |  |  |  |
| 2                                                                                      |  | 33.49 |  | 2.30  |  | 63.92 |  | 0.00  |  | 0.00  |  | 100.00       |  | 81.28 |  |       |  |       |  |        |  |       |  |                     |  |  |  |  |  |  |  |  |  |  |  |
| 3                                                                                      |  | 22.60 |  | 8.74  |  | 68.66 |  | 0.00  |  | 0.00  |  | 100.00       |  | 73.59 |  |       |  |       |  |        |  |       |  |                     |  |  |  |  |  |  |  |  |  |  |  |
| 4                                                                                      |  | 25.30 |  | 14.74 |  | 59.74 |  | 0.00  |  | 0.00  |  | 100.00       |  | 86.18 |  |       |  |       |  |        |  |       |  |                     |  |  |  |  |  |  |  |  |  |  |  |
| 5                                                                                      |  | 17.80 |  | 17.33 |  | 59.87 |  | 0.00  |  | 0.00  |  | 100.00       |  | 82.19 |  |       |  |       |  |        |  |       |  |                     |  |  |  |  |  |  |  |  |  |  |  |
| 6                                                                                      |  | 10.96 |  | 16.82 |  | 72.22 |  | 0.00  |  | 0.00  |  | 100.00       |  | 79.74 |  |       |  |       |  |        |  |       |  |                     |  |  |  |  |  |  |  |  |  |  |  |
| 7                                                                                      |  | 13.69 |  | 29.70 |  | 56.56 |  | 0.00  |  | 0.00  |  | 100.00       |  | 85.35 |  |       |  |       |  |        |  |       |  |                     |  |  |  |  |  |  |  |  |  |  |  |
| 8                                                                                      |  | 10.48 |  | 43.13 |  | 46.15 |  | 0.00  |  | 0.00  |  | 100.00       |  | 76.31 |  |       |  |       |  |        |  |       |  |                     |  |  |  |  |  |  |  |  |  |  |  |
| 9                                                                                      |  | 13.49 |  | 56.85 |  | 29.65 |  | 0.00  |  | 0.00  |  | 100.00       |  | 89.26 |  |       |  |       |  |        |  |       |  |                     |  |  |  |  |  |  |  |  |  |  |  |
| 10                                                                                     |  | 14.75 |  | 85.21 |  | 0.04  |  | 0.00  |  | 0.00  |  | 100.00       |  |       |  |       |  |       |  |        |  |       |  |                     |  |  |  |  |  |  |  |  |  |  |  |
| AVERAGE DURATION OF RUN                                                                |  |       |  |       |  |       |  |       |  |       |  |              |  |       |  |       |  |       |  |        |  |       |  |                     |  |  |  |  |  |  |  |  |  |  |  |
| SPAN                                                                                   |  | C1    |  | I     |  | C     |  | MCD   |  |       |  |              |  |       |  |       |  |       |  |        |  |       |  |                     |  |  |  |  |  |  |  |  |  |  |  |
| MONTHS                                                                                 |  | 1.52  |  | 1.31  |  | 5.88  |  | 3.00  |  |       |  |              |  |       |  |       |  |       |  |        |  |       |  |                     |  |  |  |  |  |  |  |  |  |  |  |
| L/C RATIO FOR MONTHS SPAN                                                              |  |       |  |       |  |       |  |       |  |       |  |              |  |       |  |       |  |       |  |        |  |       |  |                     |  |  |  |  |  |  |  |  |  |  |  |
| SPAN                                                                                   |  | 1     |  | 2     |  | 3     |  | 4     |  | 5     |  | 6            |  | 7     |  | 8     |  | 9     |  | 10     |  | 11    |  |                     |  |  |  |  |  |  |  |  |  |  |  |
| MONTHS                                                                                 |  | 6.05  |  | 3.33  |  | 1.61  |  | 1.32  |  | 1.17  |  | .81          |  | .68   |  | .58   |  | .62   |  | .44    |  | .49   |  |                     |  |  |  |  |  |  |  |  |  |  |  |
| MONTHS FOR CYCICAL DOMINANCE 6                                                         |  |       |  |       |  |       |  |       |  |       |  |              |  |       |  |       |  |       |  |        |  |       |  |                     |  |  |  |  |  |  |  |  |  |  |  |
| AVERAGE PER CENT CHANGE WITH REGARD TO SIGN AND STANDARD DEVIATION OVER INDICATED SPAN |  |       |  |       |  |       |  |       |  |       |  |              |  |       |  |       |  |       |  |        |  |       |  |                     |  |  |  |  |  |  |  |  |  |  |  |
| SPAN                                                                                   |  | J1    |  | D13   |  | J12   |  | D10   |  | F1    |  | E1           |  | E2    |  | E3    |  |       |  |        |  |       |  |                     |  |  |  |  |  |  |  |  |  |  |  |
| MONTHS                                                                                 |  | AVGE  |  | S.D.  |  | AVGE  |  | S.D.  |  | AVGE  |  | S.D.         |  | AVGE  |  | S.D.  |  | AVGE  |  | S.D.   |  | S.D.  |  |                     |  |  |  |  |  |  |  |  |  |  |  |
| 1                                                                                      |  | 11.40 |  | 40.00 |  | 3.03  |  | 1.89  |  | 3.65  |  | 3.81         |  | 5.01  |  | 23.78 |  | 1.99  |  | 4.17   |  |       |  |                     |  |  |  |  |  |  |  |  |  |  |  |
| 2                                                                                      |  | 10.47 |  | 39.04 |  | -2.4  |  | 17.10 |  | 6.42  |  | 9.15         |  | 6.45  |  | 21.51 |  | 6.43  |  | 6.74   |  |       |  |                     |  |  |  |  |  |  |  |  |  |  |  |
| 3                                                                                      |  | 13.55 |  | 39.04 |  | 17.0  |  | 18.14 |  | 9.03  |  | 11.93        |  | 10.01 |  | 23.71 |  | 9.12  |  | 11.79  |  |       |  |                     |  |  |  |  |  |  |  |  |  |  |  |
| 4                                                                                      |  | 17.80 |  | 39.04 |  | 11.1  |  | 21.48 |  | 11.82 |  | 14.48        |  | 10.01 |  | 27.21 |  | 11.92 |  | 14.51  |  |       |  |                     |  |  |  |  |  |  |  |  |  |  |  |
| 5                                                                                      |  | 22.90 |  | 55.43 |  | -10.0 |  | 18.10 |  | 14.76 |  | 16.90        |  | 0.12  |  | 33.73 |  | 15.10 |  | 17.00  |  |       |  |                     |  |  |  |  |  |  |  |  |  |  |  |
| 6                                                                                      |  | 22.99 |  | 49.53 |  | -11.4 |  | 17.28 |  | 17.06 |  | 19.23        |  | +0.39 |  | 31.96 |  | 18.00 |  | 19.18  |  |       |  |                     |  |  |  |  |  |  |  |  |  |  |  |
| 7                                                                                      |  | 23.83 |  | 57.53 |  | -25.1 |  | 19.48 |  | 24.52 |  | 27.69        |  | 1.24  |  | 35.64 |  | 25.44 |  | 23.46  |  |       |  |                     |  |  |  |  |  |  |  |  |  |  |  |
| 8                                                                                      |  | 30.74 |  | 67.47 |  | -20.7 |  | 19.35 |  | 35.53 |  | 28.95        |  | -0.03 |  | 1.13  |  | 35.87 |  | 35.31  |  |       |  |                     |  |  |  |  |  |  |  |  |  |  |  |
| 9                                                                                      |  | 35.74 |  | 41.57 |  |       |  |       |  |       |  |              |  |       |  |       |  | 41.78 |  | 29.22  |  |       |  |                     |  |  |  |  |  |  |  |  |  |  |  |

TABLE 17 Summary measures: Time series analysis for arrivals from Belgium, period covered: July 1971 - June 1975

|                                                                                        |  |       |       |       |       |       |        |       |        |       |        |              |     |  |                     |  |  |
|----------------------------------------------------------------------------------------|--|-------|-------|-------|-------|-------|--------|-------|--------|-------|--------|--------------|-----|--|---------------------|--|--|
| 22/12/75                                                                               |  |       |       |       |       |       |        |       |        |       |        | SERIES NO. 5 |     |  | P.11, SERIES RC 005 |  |  |
| SUMMARY MEASURES                                                                       |  |       |       |       |       |       |        |       |        |       |        |              |     |  |                     |  |  |
| AVERAGE PER CENT CHANGE WITHOUT REGARD TO SIGN OVER INDICATED SPAN                     |  |       |       |       |       |       |        |       |        |       |        |              |     |  |                     |  |  |
| SPAN                                                                                   |  | J1    | U11   | D13   | D12   | D10   | A2     | C18   | F1     | E1    | E2     | E3           |     |  |                     |  |  |
| MONTHS                                                                                 |  | C     | C     | C     | C     | C     | P      | TU    | MCD    | MOD.0 | MOD.C1 | MOD.1        |     |  |                     |  |  |
| 1                                                                                      |  | 32.11 | 15.85 | 12.54 | 3.33  | 28.62 | 0.00   | 0.00  | 3.73   | 32.11 | 13.85  | 12.54        |     |  |                     |  |  |
| 2                                                                                      |  | 41.85 | 16.23 | 13.94 | 3.47  | 35.57 | 0.00   | 0.00  | 8.76   | 41.85 | 16.23  | 13.94        |     |  |                     |  |  |
| 3                                                                                      |  | 41.76 | 16.12 | 11.45 | 3.43  | 35.35 | 0.00   | 0.00  | 9.48   | 41.70 | 16.11  | 11.45        |     |  |                     |  |  |
| 4                                                                                      |  | 39.44 | 18.36 | 11.88 | 11.05 | 32.91 | 0.00   | 0.00  | 11.87  | 39.44 | 18.36  | 11.88        |     |  |                     |  |  |
| 5                                                                                      |  | 46.88 | 26.44 | 8.84  | 13.59 | 34.40 | 0.00   | 0.00  | 14.21  | 46.83 | 26.40  | 9.84         |     |  |                     |  |  |
| 6                                                                                      |  | 44.00 | 23.94 | 11.49 | 15.97 | 31.39 | 0.00   | 0.00  | 16.51  | 44.02 | 23.91  | 11.49        |     |  |                     |  |  |
| 7                                                                                      |  | 59.82 | 25.93 | 14.66 | 13.07 | 35.52 | 0.00   | 0.00  | 19.44  | 49.82 | 25.09  | 14.62        |     |  |                     |  |  |
| 8                                                                                      |  | 57.25 | 26.71 | 9.67  | 20.85 | 38.40 | 0.00   | 0.00  | 25.34  | 47.25 | 26.70  | 9.67         |     |  |                     |  |  |
| 9                                                                                      |  | 47.93 | 32.91 | 16.63 | 23.58 | 21.16 | 0.00   | 0.00  | 31.08  | 47.93 | 32.91  | 16.63        |     |  |                     |  |  |
| 10                                                                                     |  | 58.09 | 58.15 | 14.17 | 32.74 | 6.80  | 0.00   | 0.00  | 33.87  | 38.09 | 33.15  | 14.17        |     |  |                     |  |  |
| RELATIVE CONTRIBUTIONS OF COMPONENTS TO VARIANCE IN ORIGINAL SERIES                    |  |       |       |       |       |       |        |       |        |       |        |              |     |  |                     |  |  |
| SPAN                                                                                   |  | D13   | D12   | D10   | A2    | C18   | TOTAL  |       | RATIO  |       |        |              |     |  |                     |  |  |
| MONTHS                                                                                 |  | C     | C     | C     | C     | TU    | S      |       | (X100) |       |        |              |     |  |                     |  |  |
| 1                                                                                      |  | 39.92 | 3.13  | 82.95 | 0.00  | 0.00  | 100.00 |       | 95.79  |       |        |              |     |  |                     |  |  |
| 2                                                                                      |  | 12.94 | 2.79  | 84.27 | 0.00  | 0.00  | 100.00 |       | 85.71  |       |        |              |     |  |                     |  |  |
| 3                                                                                      |  | 8.30  | 0.23  | 85.03 | 0.00  | 0.00  | 100.00 |       | 84.52  |       |        |              |     |  |                     |  |  |
| 4                                                                                      |  | 10.84 | 10.76 | 78.44 | 0.00  | 0.00  | 100.00 |       | 84.12  |       |        |              |     |  |                     |  |  |
| 5                                                                                      |  | 6.47  | 10.07 | 80.86 | 0.00  | 0.00  | 100.00 |       | 88.24  |       |        |              |     |  |                     |  |  |
| 6                                                                                      |  | 9.62  | 18.35 | 71.79 | 0.00  | 0.00  | 100.00 |       | 74.83  |       |        |              |     |  |                     |  |  |
| 7                                                                                      |  | 11.57 | 18.28 | 70.15 | 0.00  | 0.00  | 100.00 |       | 74.41  |       |        |              |     |  |                     |  |  |
| 8                                                                                      |  | 4.31  | 25.76 | 69.93 | 0.00  | 0.00  | 100.00 |       | 66.23  |       |        |              |     |  |                     |  |  |
| 9                                                                                      |  | 7.88  | 64.45 | 31.67 | 0.00  | 0.00  | 100.00 |       | 62.39  |       |        |              |     |  |                     |  |  |
| 10                                                                                     |  | 10.01 | 84.10 | 0.64  | 0.00  | 0.00  | 100.00 |       | 87.61  |       |        |              |     |  |                     |  |  |
| AVERAGE DURATION OF RUN                                                                |  |       |       |       |       |       |        |       |        |       |        |              |     |  |                     |  |  |
| SPAN                                                                                   |  | C1    | I     | C     | MCD   |       |        |       |        |       |        |              |     |  |                     |  |  |
| MONTHS                                                                                 |  | 1.62  | 1.47  | 4.70  | 3.58  |       |        |       |        |       |        |              |     |  |                     |  |  |
| L/C RATIO FOR MONTHS SPAN                                                              |  |       |       |       |       |       |        |       |        |       |        |              |     |  |                     |  |  |
| SPAN                                                                                   |  | 1     | 2     | 3     | 4     | 5     | 6      | 7     | 8      | 9     | 10     | 11           | 12  |  |                     |  |  |
| MONTHS                                                                                 |  | 3.76  | 2.15  | 1.21  | 1.00  | .74   | .72    | .80   | .54    | .41   | .44    | .36          | .43 |  |                     |  |  |
| MONTHS FOR CYCICAL DOMINANCE 5                                                         |  |       |       |       |       |       |        |       |        |       |        |              |     |  |                     |  |  |
| AVERAGE PER CENT CHANGE WITH REGARD TO SIGN AND STANDARD DEVIATION OVER INDICATED SPAN |  |       |       |       |       |       |        |       |        |       |        |              |     |  |                     |  |  |
| SPAN                                                                                   |  | J1    | D13   | J12   | D10   | F1    | E1     | E2    | E3     |       |        |              |     |  |                     |  |  |
| MONTHS                                                                                 |  | AVGE  | S.D.  | AVGE  | S.D.  | AVGE  | S.D.   | AVGE  | S.D.   | AVGE  | MCD    | S.D.         |     |  |                     |  |  |
| 1                                                                                      |  | 10.05 | 37.77 | 8.5   | 16.35 | 1.02  | 3.88   | 3.00  | 4.96   | 2.05  | 4.28   |              |     |  |                     |  |  |
| 2                                                                                      |  | 16.65 | 35.77 | 8.1   | 13.31 | 5.91  | 14.51  | 7.03  | 44.83  | 7.15  | 7.19   |              |     |  |                     |  |  |
| 3                                                                                      |  | 15.00 | 35.00 | 11.05 | 11.21 | 8.48  | 12.84  | 9.81  | 35.43  | 9.87  | 16.09  |              |     |  |                     |  |  |
| 4                                                                                      |  | 21.05 | 50.50 | 10.35 | 12.95 | 11.21 | 14.31  | 7.31  | 43.03  | 12.48 | 13.12  |              |     |  |                     |  |  |
| 5                                                                                      |  | 20.22 | 55.44 | 6.0   | 16.04 | 14.07 | 14.94  | 5.67  | 44.03  | 15.34 | 16.21  |              |     |  |                     |  |  |
| 6                                                                                      |  | 23.03 | 63.76 | 1.21  | 16.93 | 17.03 | 14.93  | 7.37  | 44.03  | 18.86 | 16.14  |              |     |  |                     |  |  |
| 7                                                                                      |  | 33.33 | 64.22 | 6.0   | 12.86 | 23.21 | 14.84  | 5.04  | 49.26  | 24.38 | 24.34  |              |     |  |                     |  |  |
| 8                                                                                      |  | 37.22 | 59.77 | 1.0   | 12.43 | 23.20 | 14.87  | +0.31 | 27.27  | 31.69 | 27.23  |              |     |  |                     |  |  |
| 9                                                                                      |  | 34.93 | 32.78 | 1.44  | 17.17 | 32.52 | 19.81  | -0.01 | 5.9    | 34.98 | 32.89  |              |     |  |                     |  |  |

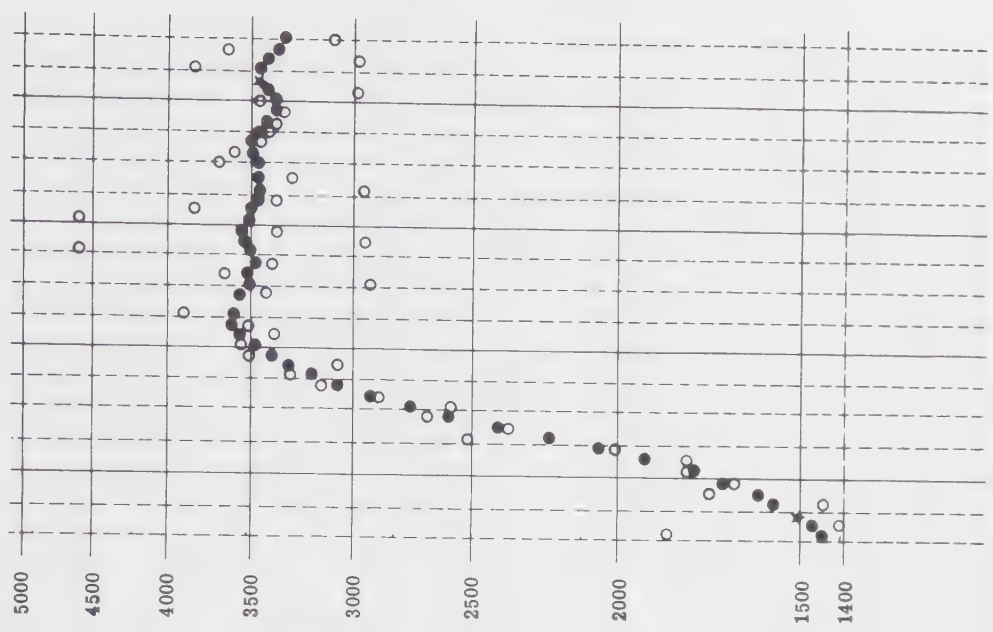


FIGURE 3 Final seasonally adjusted series and final trend cycle for arrivals from Germany (FRG)



Scale semi-logarithmic

FIGURE 4 Final seasonally adjusted series and final trend cycle for arrivals from France



Scale semi-logarithmic

- D11 (see p. 23) Final seasonally adjusted series
- D12 (see p. 23) Final trend cycle
- ★ Coincidence of points

FIGURE 5 Final seasonally adjusted series and final trend cycle for arrivals from Italy

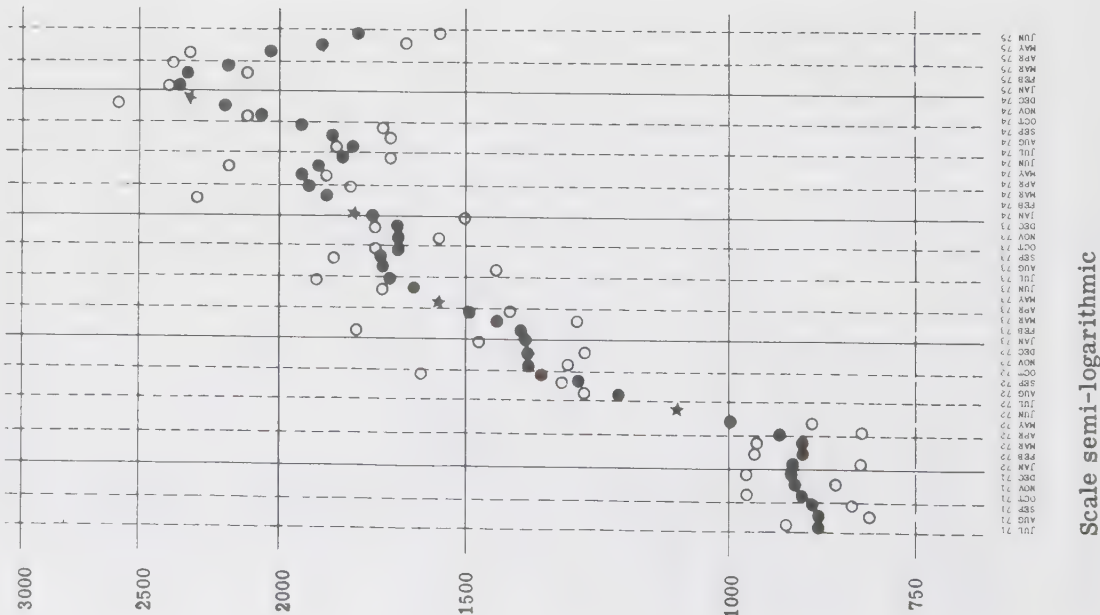
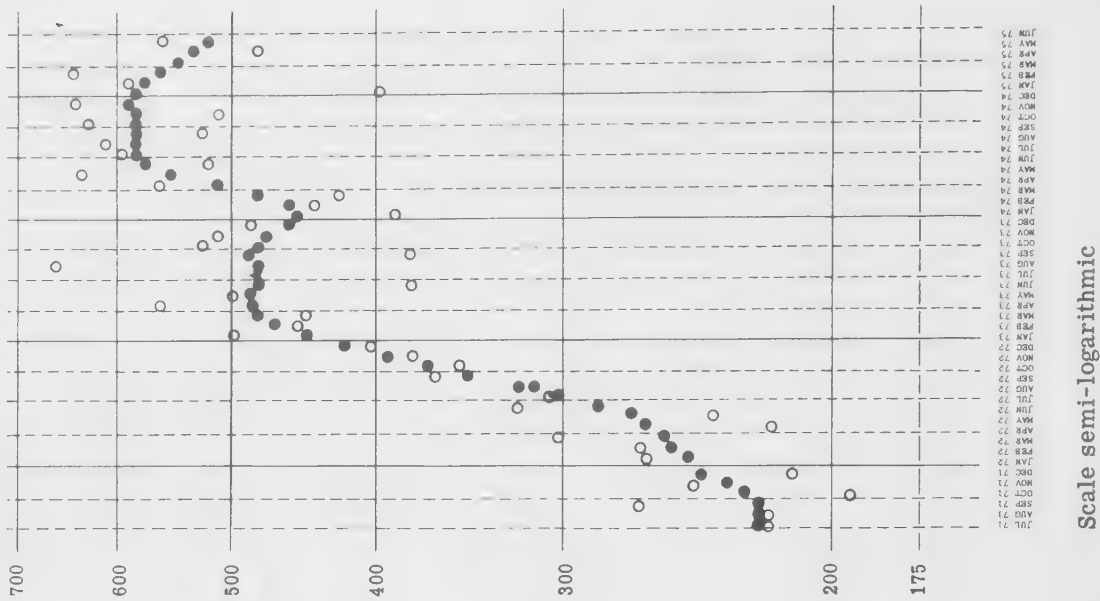


FIGURE 6 Final seasonally adjusted series and final trend cycle for arrivals from Belgium



### 1.3. The situation and importance of Bangkok area for travellers from Switzerland

#### 1.31. Magnitude and structure of arrivals of Swiss travellers

TABLE 18 Swiss Visitors arriving by mode of transport, 1972/73

| Month     | Year | By Air |        | By other mode of transport |       | in % of monthly total           |        |
|-----------|------|--------|--------|----------------------------|-------|---------------------------------|--------|
|           |      | 1972   | 1973   | 1972                       | 1973  | 1972                            | 1973   |
| Total     |      | 14599  | 22840  | 583                        | 923   | 3.84 %                          | 3.88 % |
| January   |      | 1533   | P 2826 | 39                         | T 55  | 2.48                            | 1.91   |
| February  |      | 1673   | 2086   | 40                         | 72    | 2.34                            | 3.37   |
| March     |      | 1357   | 2279   | 57                         | 76    | 4.03                            | 3.23   |
| April     |      | 894    | 1932   | 33                         | 78    | 3.56                            | 3.88   |
| May       |      | 630    | 1697   | t 24                       | 65    | 3.67                            | 3.69   |
| June      |      | T 486  | T 828  | 50                         | 63    | 9.33                            | 7.07   |
| July      |      | 929    | 1716   | 48                         | 63    | 4.91                            | 3.54   |
| August    |      | 912    | 1450   | p 73                       | P 103 | 7.41                            | 6.63   |
| September |      | 1025   | 1618   | 57                         | 95    | 5.27                            | 5.55   |
| October   |      | 1564   | 2041   | 66                         | 83    | 4.05                            | 3.91   |
| November  |      | 1649   | 1647   | T 21                       | 89    | 1.26                            | 5.13   |
| December  |      | P 1947 | 2720   | P 75                       | 81    | 3.71                            | 2.89   |
|           |      |        |        |                            |       | 'Others' in % of monthly total. |        |

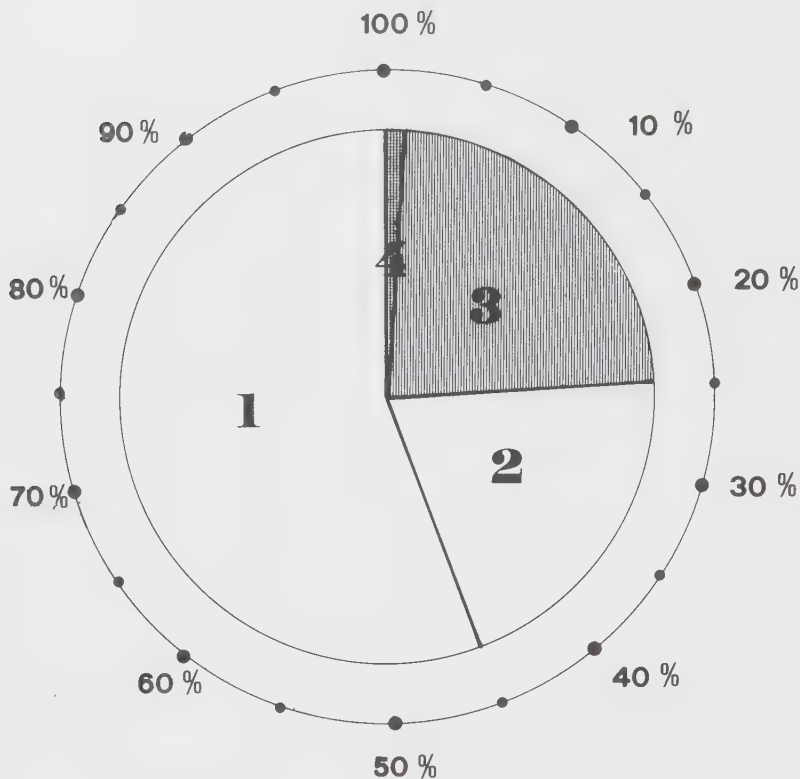
P = primary peak  
p = secondary peak

T = primary trough  
t = secondary trough

Source: Pacific Area Travel Organization, PATA, 6<sup>th</sup> Statistical Report 1972-73, San Francisco, 1974.



FIGURE 7 Swiss travellers:  
Proportion of charter tourists to the total number of arrivals, November 15, 1974 - June 20, 1975.



(1) 16405 100 %: arrivals of Swiss nationals in Bangkok International Airport, from November 15, 1974 to June 20, 1975

Source: Immigration Division, Police Department / Basis: Disembarkation cards

(2) 7300 44 % approx.: arriving individuals of Swiss nationality, only charter tourists from Switzerland

Source: see appendix 1.

(3) 3996 24 % approx.: arrivals of package tourists (Swiss nationals only) on standardized packages, with eventual additional extensions

Source: see appendix 1.

(4) 151 1 % approx. (2.1 % of (2) respectively 3.8 % of (3): arrivals of tested Swiss passengers. 1)

Source: see appendix 3.

1) Not included in this investigation are therefore:

- (1) Tourists on Inclusive Tours using scheduled flights
- (2) Tourists on Charter Flights by other than Swiss airlines
- (3) Tourists on Groundarrangements and arrivals by sea
- (4) Business tourists
- (5) Foreign Individual Tourists using Charter Flights from Switzerland and other Foreign Individual Tourists

Figure 8 Average number of flights, per weekday and month, November 1974 - June 1975, with respect to passenger group sizes (Swiss passengers)

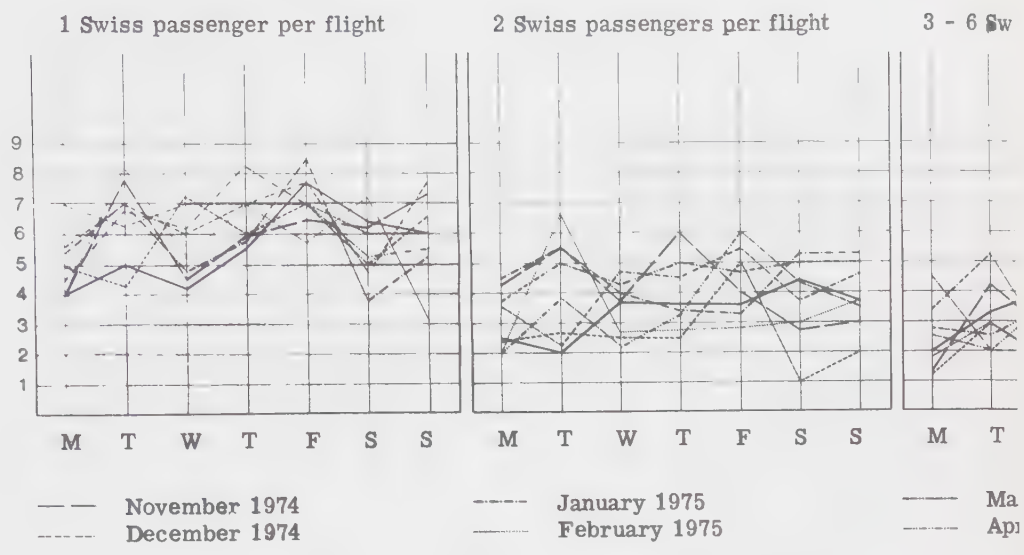
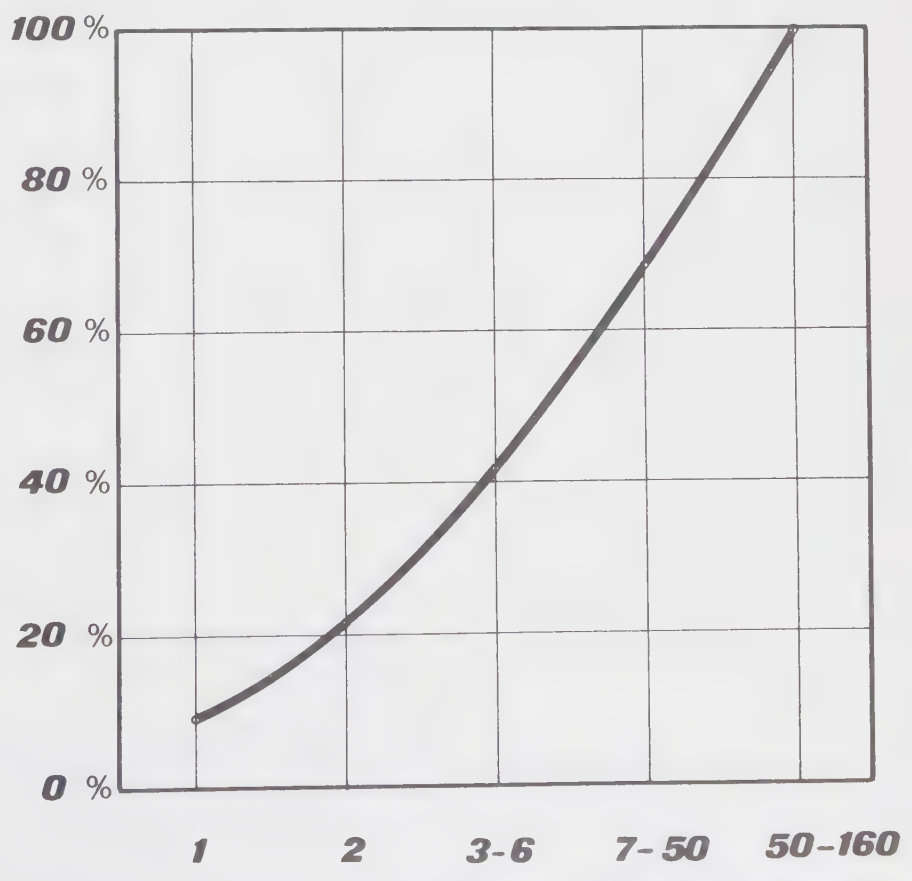


Figure 9 Group sizes of Swiss passengers, per flight, November 1974 - June 1975



Size of passenger group (Swiss nationals only). ▲ 100 % = all flights with Swiss passengers at all.

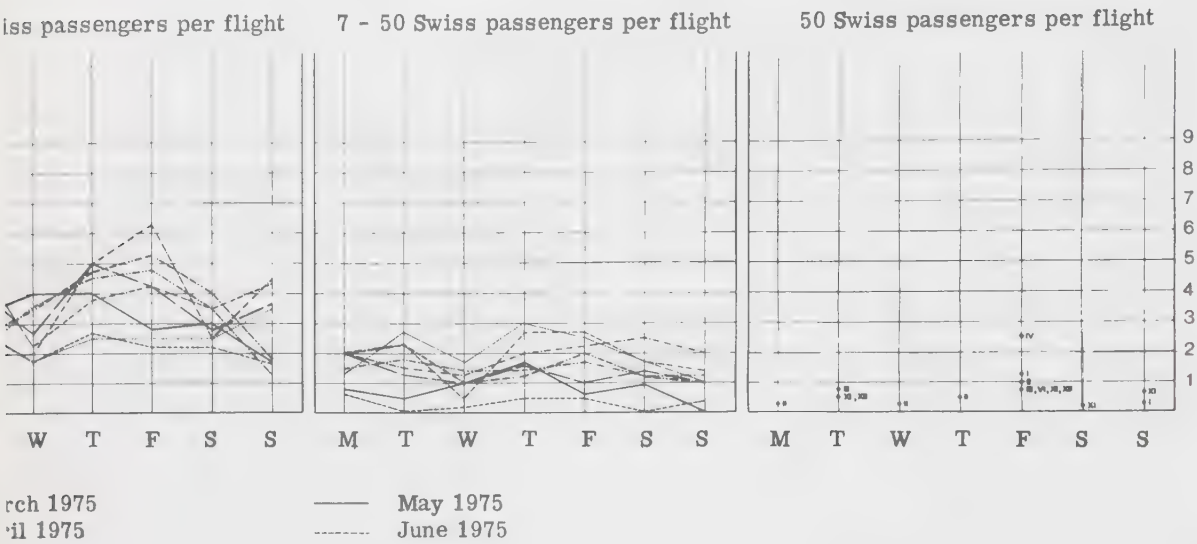


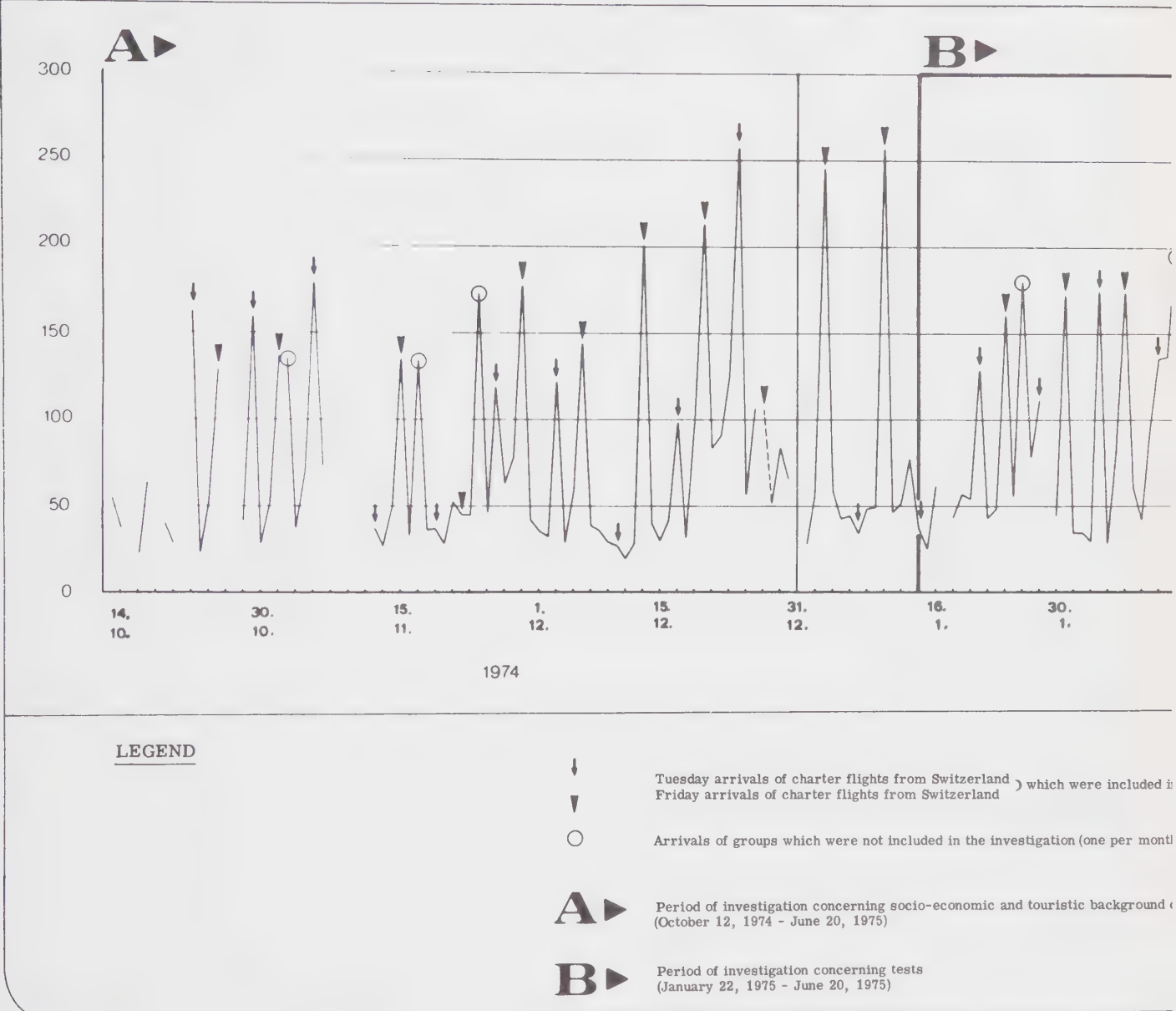
Table 19 Proportion of flights and passengers in groups of more than 10 people during the period of investigation (Swiss passengers only)

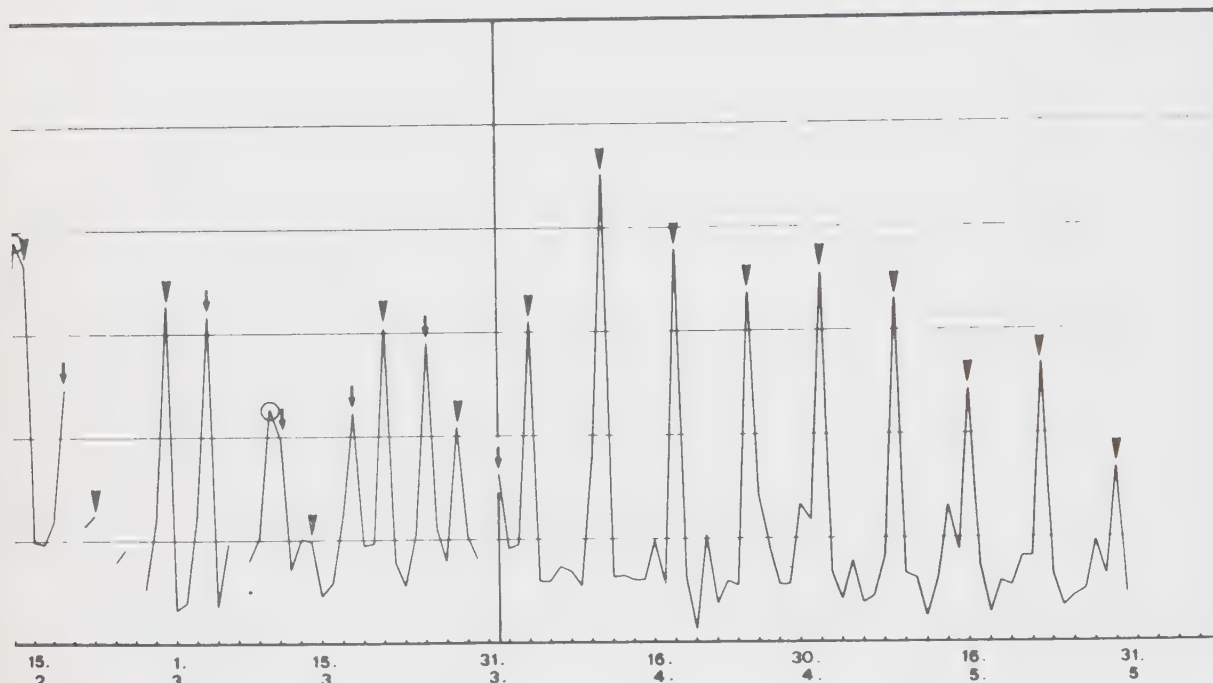
|          |      | % of total arrivals<br>(Flights) | % of total arrivals<br>(Passengers) |
|----------|------|----------------------------------|-------------------------------------|
| October  | 1974 | 7.5 %                            | 58.9 %                              |
| November |      | 6.0                              | 53.6                                |
| December |      | 8.0                              | 55.4                                |
| January  | 1975 | 7.5                              | 53.6                                |
| February |      | 12.0                             | 67.5                                |
| March    |      | 5.6                              | 47.0                                |
| April    |      | 5.5                              | 44.0                                |
| May      |      | 3.7                              | 42.1                                |



1.32. The importance of charter flights from Switzerland

Fig. 10 Daily arrivals of Swiss passengers, October 12, 1974 - May 31, 1975





1975

the investigation

i)

ata

Records concerning the following dates within the period of investigation are not available and therefore missing data:

October 15 / 18 / 21 / 26 / 27 /

November 7 / 8 / 10 / 11 /

December 31 /

January 17 / 29 /

February 19 / 22 / 25 /

March 7 / 31 /

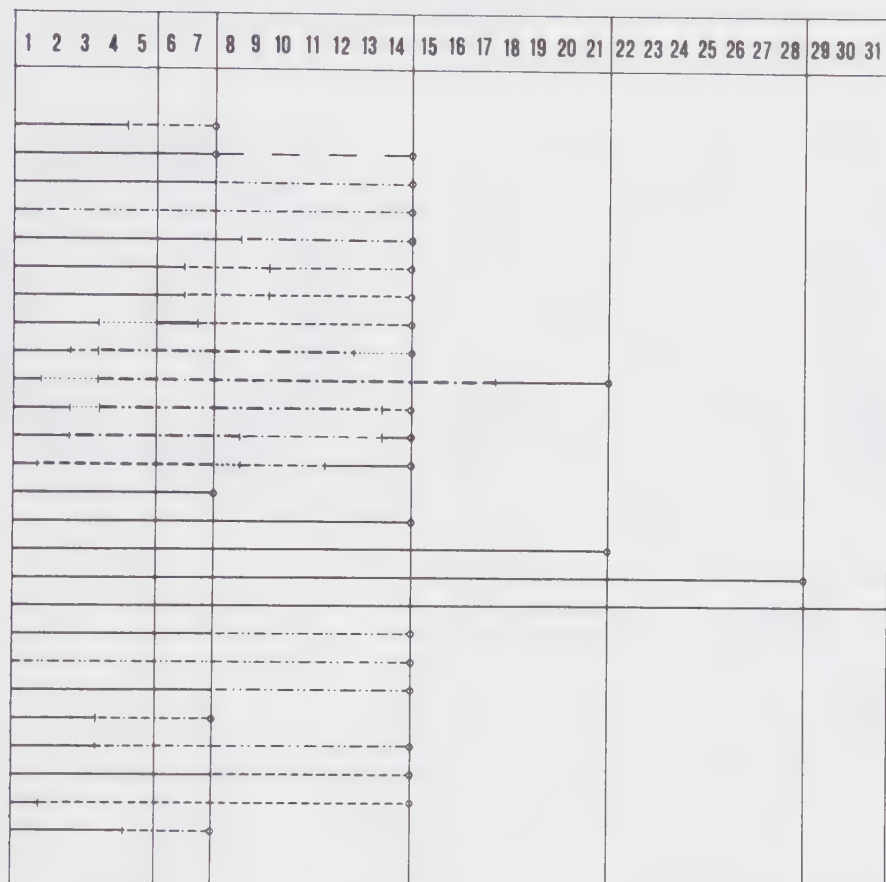
Source: Statistical Section, Tourist Organization of Thailand/ Immigration Division, Police Dept.

1.33. Package tourists from Switzerland

1.331. Analysis of the extensions and excursions of tourists on packages

1.3311. The extensions

FIGURE 11 Packages available: Duration of stays in Bangkok (1974/75)



— Bangkok

--- Pattaya

--- Prinsendam (ship)

--- Hongkong

--- Rasa Sayang (ship)

--- Thailand Roundtrip

--- Burma

--- Penang

--- Nepal

--- Singapore

--- Japan

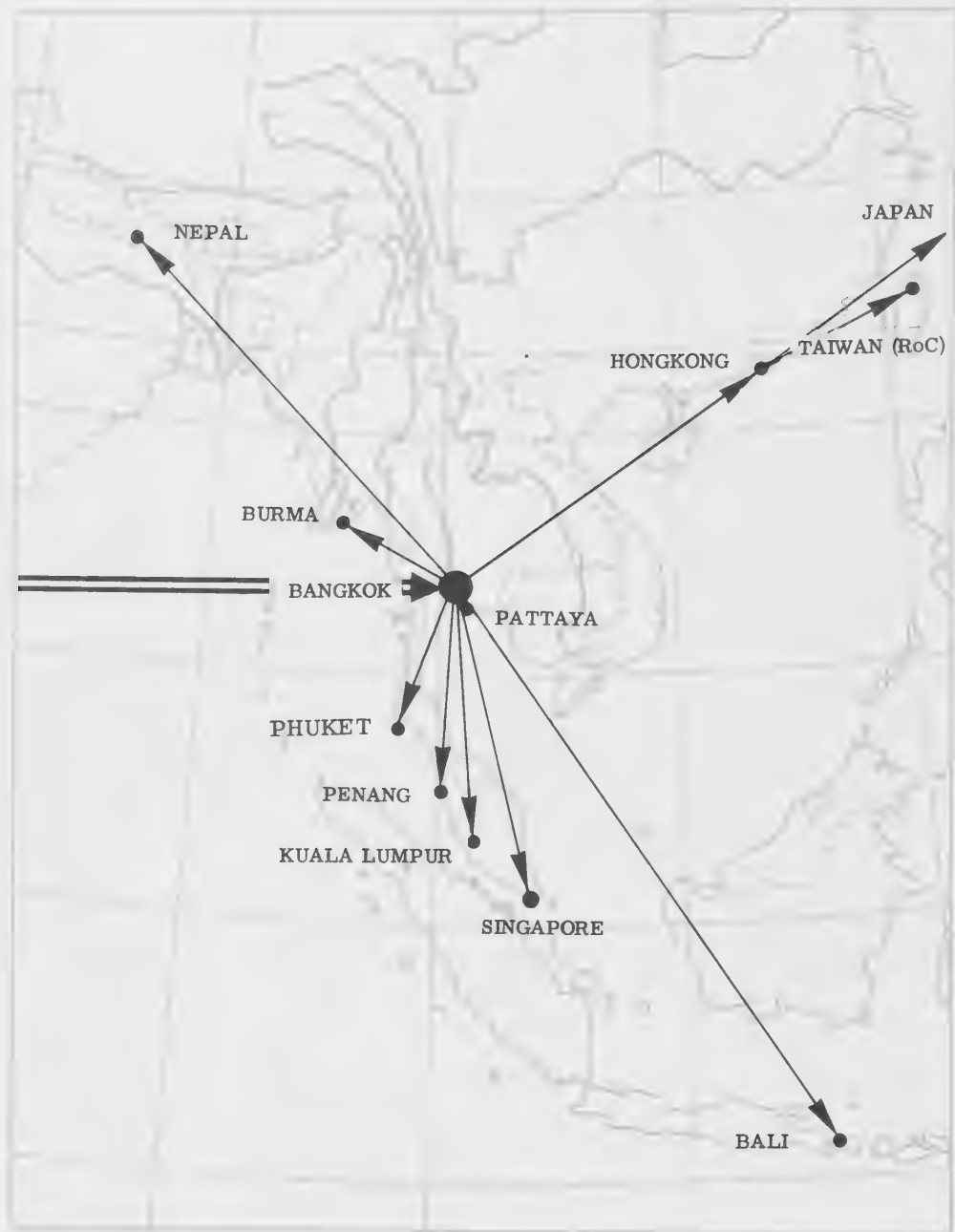
--- Kuala Lumpur

--- Taiwan (Republic of China)

--- Indonesia - Bali

MAP 1

Packages and extensions to other destinations as offered 1974/75





1.3312. Selected excursions inside and outside Bangkok, participants in % of all package tourists within the period of investigation (November 15, 1974 - June 20, 1975)

MAP 2



LEGEND:

- |   |                                              |
|---|----------------------------------------------|
| 1 | Temple and City Tour                         |
| 2 | Klong Kacha (Klong = canal)                  |
| 3 | Damnoen Saduak/Floating Market/Rosegarden    |
| 4 | Ayudhya (ancient capital, destroyed in 1767) |
| 5 | Crocodile Farm                               |
| 6 | Pattaya (Seaside resort)                     |
- 
- |  |                                                                                                                                        |
|--|----------------------------------------------------------------------------------------------------------------------------------------|
|  | 100 % Participants in excursions, in % of all package tourists within the period of investigation (November 15, 1974 - June, 20, 1975) |
|  | 50 %                                                                                                                                   |
|  | 0 %                                                                                                                                    |

1.332. Characteristic features (socio-economic and touristic background variables) of all package tourists within the period of investigation; to compare with appendix 1

The subjects investigated represent the "universe" of package tourists participating in tours organised by Swiss tour operators within the period of investigation (see chap. 1.3.).

The following findings form a brief presentation of the characteristic features only. The detailed results of cross tabulated, selected variables of all 4'959 tourists examined in the period of investigation (November 1974 to June 1975) are to be found in the form of 31 tables in appendix 1.

We have purposely avoided more complicated methods of analysis (e.g. variable stacking, more complex statistical procedures) and have worked with simple cross tabulations for two reasons:  
(1) the structural analysis of package tourism from Switzerland is not the principal task of the paper, but serves to assess how representative the composition of the tested individuals is.  
(2) the results should be able to be interpreted easily by people working in the field.

The tables can be appropriately combined according to need to yield further information.

Table 1-1 (appendix 1)

FIGURE 12      Profile of age according to sex  
(Package tourists embarking in Switzerland; Period of investigation:  
November 1974 - June 1975)

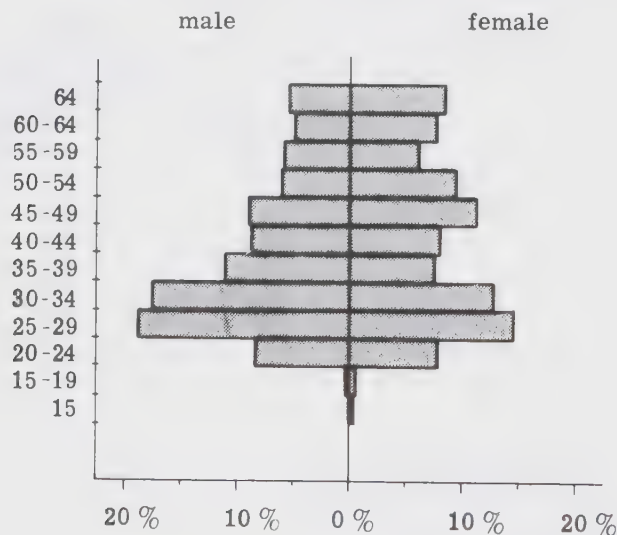


Table 1-2 (appendix 1)

|                                                                                                       | Male   | Female |
|-------------------------------------------------------------------------------------------------------|--------|--------|
| (1) Major Groups 10 and 11<br>(Agricultural and Production Workers<br>see appendix 4)                 | 24.5 % | 1.4 %  |
| (2) Major Groups 6 - 9<br>(Administrative, Clerical, Sales, and<br>Service Workers<br>see appendix 4) | 32.4 % | 31.1 % |

Table 1-2: Continued

|                                                                                           | Male   | Female |
|-------------------------------------------------------------------------------------------|--------|--------|
| (3) Major Group 5<br>(Professional, Technical and Re-<br>lated Workers<br>see appendix 4) | 22.8 % | 17.1 % |

Since there is a high percentage of females with NA (almost 1/3, see Table 1-2, appendix 7) the percentage of housewives is assumed to be considerably higher than measured. This assumption is based on observations made from the disembarkation cards (i.e. married couples).

Table 1-3 (appendix 1)

The various packages correspond to the complete range offered by Swiss tour operators in connection with charter flights. Only comparisons between similar arrangements are of interest here. It is shown that these similar arrangements vary in attractiveness to the customers of the various agencies. The reasons for this could be many, e.g. policy, reputation of the tour operators, composition of the customers etc.

The majority (58.9 %) of the persons arriving in Thailand from Colombo are on package including Sri Lanka.

1/4 of all persons coming from Colombo prolong the program by 1 to 2 weeks (usually 1 week) to visit Bangkok.

Other optional additions are of less importance (13.7 %).

Table 1-4 (appendix 1)

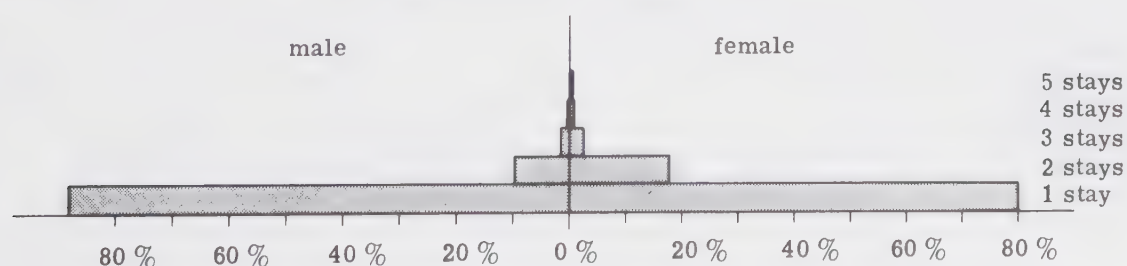
The tendency is for males to stay longer than females in Bangkok (especially when the duration of the stay is longer than 18 days).

Moreover it is noticeable that simple, single-destination packages (7 or 14 days) are preferred by men.

This already indicates that, in the case of Thailand, women more than men, tend towards multi-destination packages.

Table 1-5 (appendix 1)

FIGURE 13 Number of stays according to sex



The hypothesis of table 1-4 is reaffirmed by table 1-5: women tend to leave Bangkok or Thailand after a shorter stay and return again to spend from one to several days there, usually immediately preceding their return flight to Europe.

Table 1-24 presents a clarification of the actual situation.

Table 1-6 (appendix 1)

The distribution of package tourists among the various hotels (see map 5, p. 115) depends almost completely (eventual options concerning choice of accomodation excluded) on the policy and packages offered by the tour operators. It is therefore futile to go into a deeper probe of this table.

Table 1-7: see appendix 1

Table 1-8 (appendix 1)

There is only a slight tendency for men more (79.1 %) than women (76.5 %) to choose standard packages without any prolongation. In contrast to this, the distribution of prolongations is as follows:

FIGURE 14 Optional prolongations according to sex

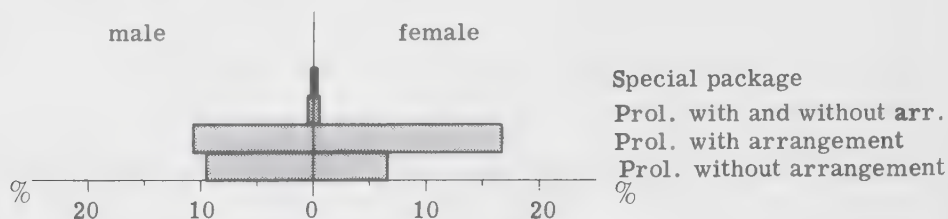


Table 1-9 (appendix 1)

Table 1-9 supports the hypothesis that women tend to choose multi-destination packages: 19.9 % of the women as opposed to only 11 % of the men come from Colombo.

Table 1-10 (appendix 1)

Women book relatively more double rooms than men, whereas a full third of all men take single rooms. The percentage of single rooms booked is high and can be taken as characteristic for Bangkok.

Partial bookings of double or triple bedded rooms are the same with respect to both sexes.

Table 1-11 (appendix 1)

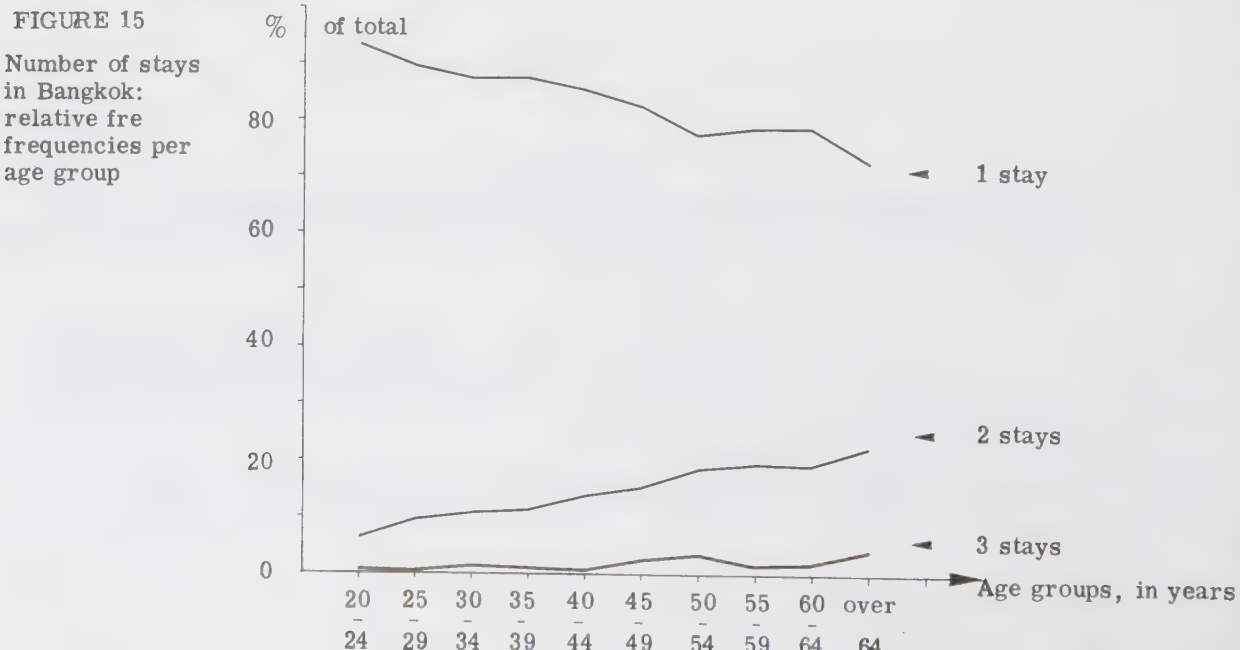




Table 1-12 (appendix 1)

FIGURE 16 Points of embarkation, per age group

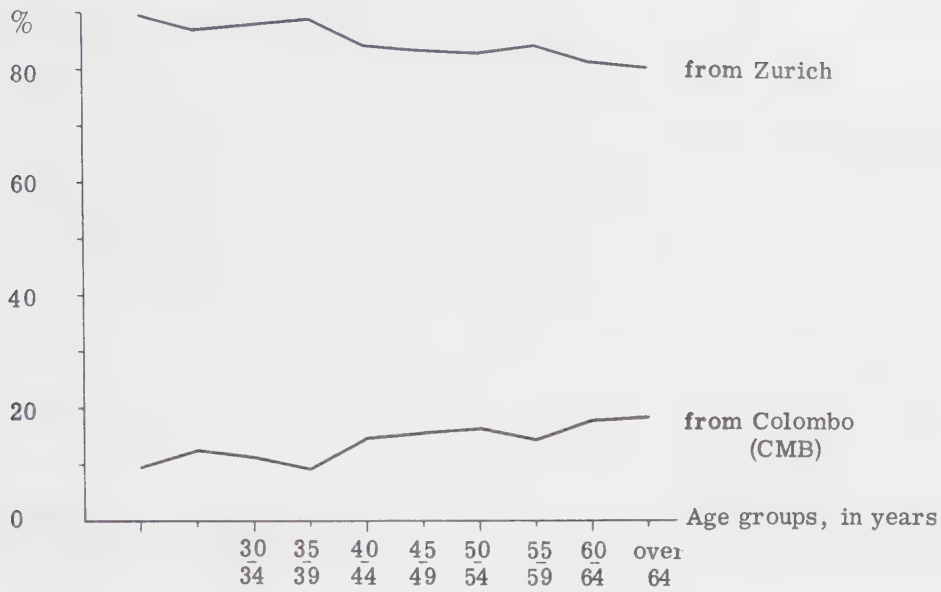


Table 1-13: see appendix 1

Table 1-14 (appendix 1)

FIGURE 17 Package "Only Bangkok" (1 or 2 weeks) per age group

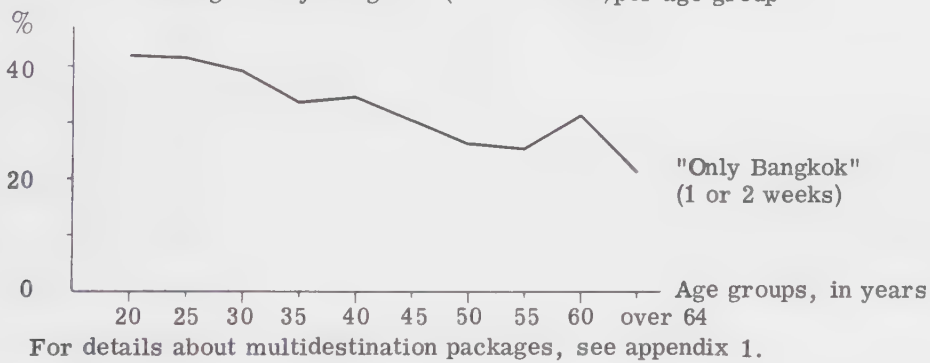


Table 1-15 (appendix 1)

Relative frequency of the three main contributory nationalities, per age group

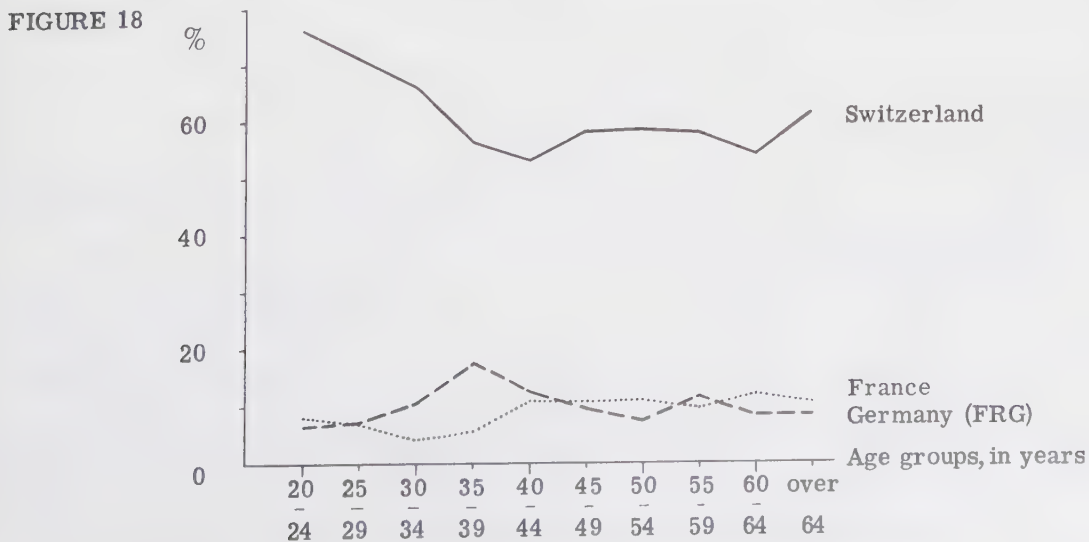


Table 1-16 (appendix 1)

FIGURE 19 Relative proportions of the major occupational groups, per age group

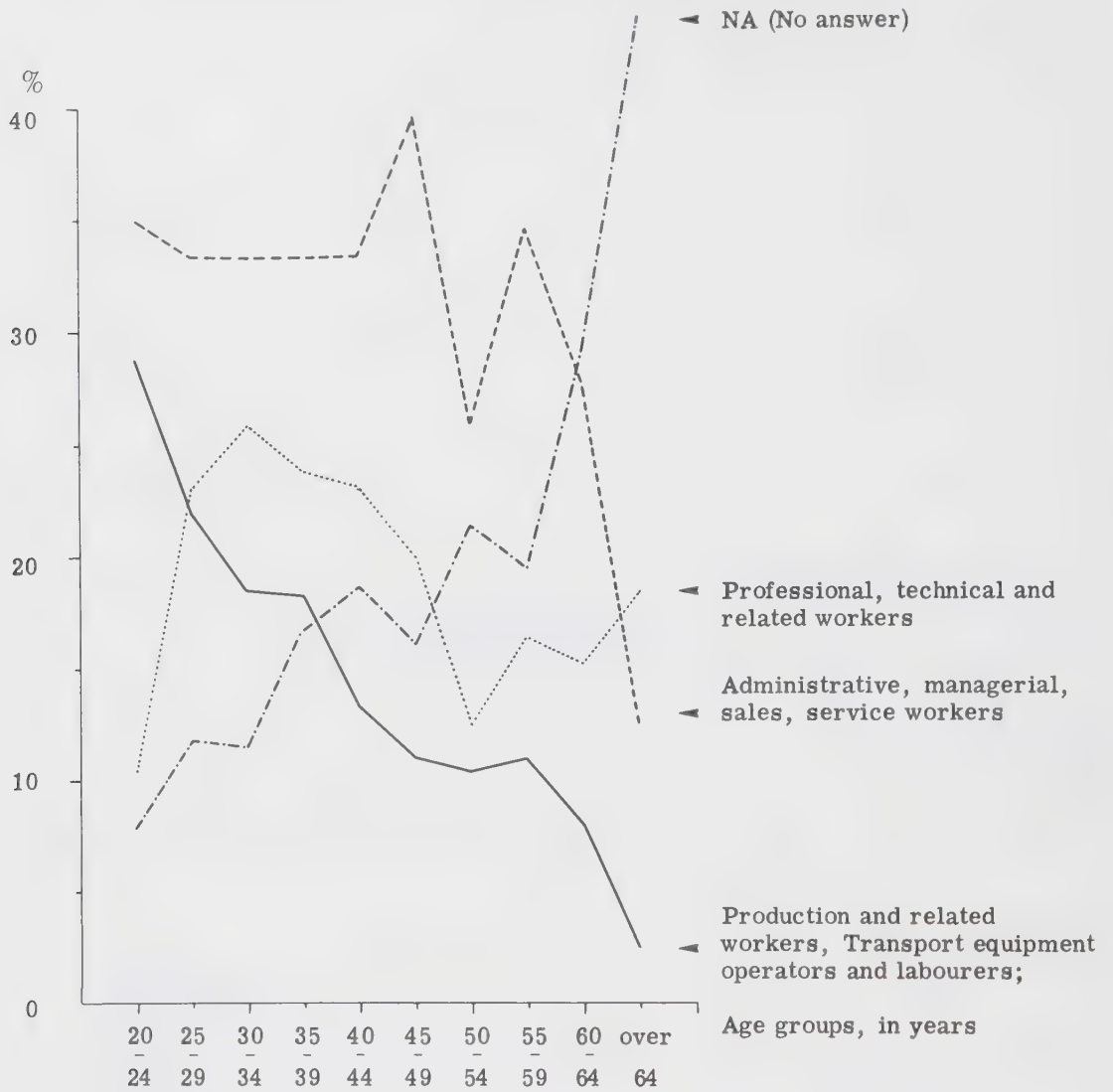
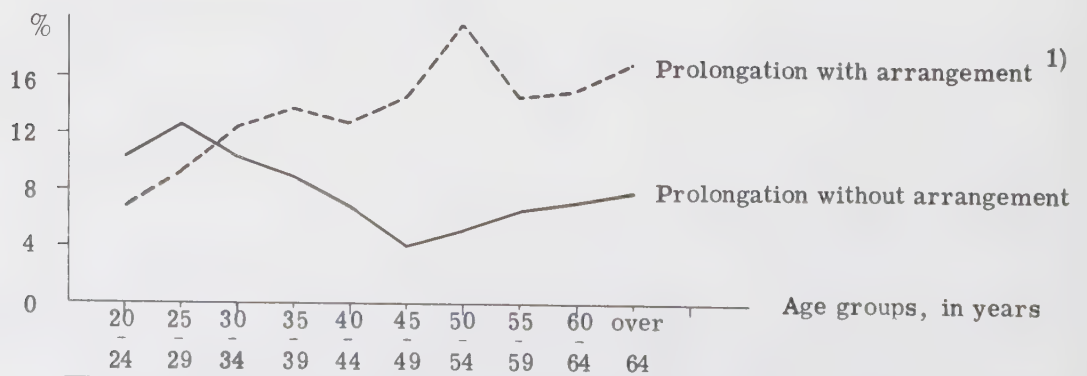


Table 1-17 (appendix 1)

FIGURE 20 Optional prolongations of packages, per age group



1) "Arrangement": prepared by Tour Operator only.

Table 1-18 (appendix 1)

Table 1-18 gives information about the points of embarkation (Zurich or Colombo) as well as, in the case of Zurich, about the composition of the agencies' customers in regard to nationality.

Table 1-19 (appendix 1)

In accordance to table 1-18, table 1-19 reveals that the French, more than other nationalities, choose mult-destination packages (with the exception of the Belgians who act similarly).

A greater percentage of Germans (42.1 %) and Austrians (47.6 %) than of any other nationality choose "Only Bangkok"- packages: of the French, Belgians and Swiss 1/4 to 1/3 choose it. Swiss (17.6 %) Germans (16.1 %), and Austrians (23.9 %) choose moreoften than any other nationality packages including a stay in the seaside resort of Pattaya.

Table 1-20: see appendix 1

Table 1-21 (appendix 1)

FIGURE 21 Relative proportion of package tourists with optional prolongations, per nationality

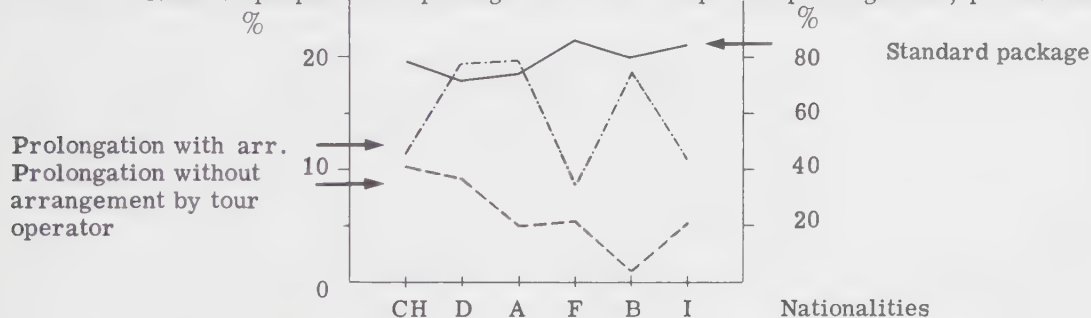


Table 1-22 (appendix 1)

FIGURE 22 Relative proportion of package tourists with optional prolongations, per major occupational group

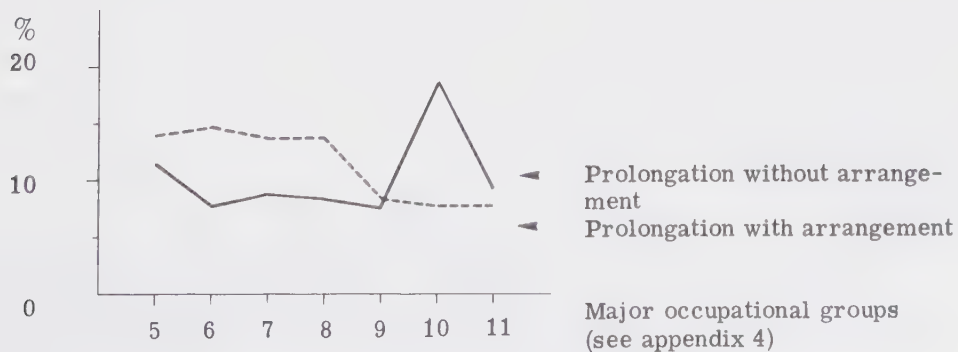


Table 1-23: see appendix 1

Table 1-24: see appendix 1 (compare with Table 1-6)

Table 1-25 (appendix 1)

Women tend relatively moreoften to multi-destination packages than men:

As for male customers, the relative proportions (per programme/total per sex) are greater for three packages only:

- (1) only Bangkok (1 or 2 weeks): 38.0 % against 27.2 % of the female customers
- (2) only Bangkok (3 and more weeks): 1.1 % against 0.5 % of the female customers
- (3) Bangkok-Pattaya: 9.2 % against 6.6 % of the female customers

Concerning Bangkok-Penang the small number of tourists has to be taken into consideration.

Table 1-26 (appendix 1)

FIGURE 23 Duration of stay in Bangkok, per age group

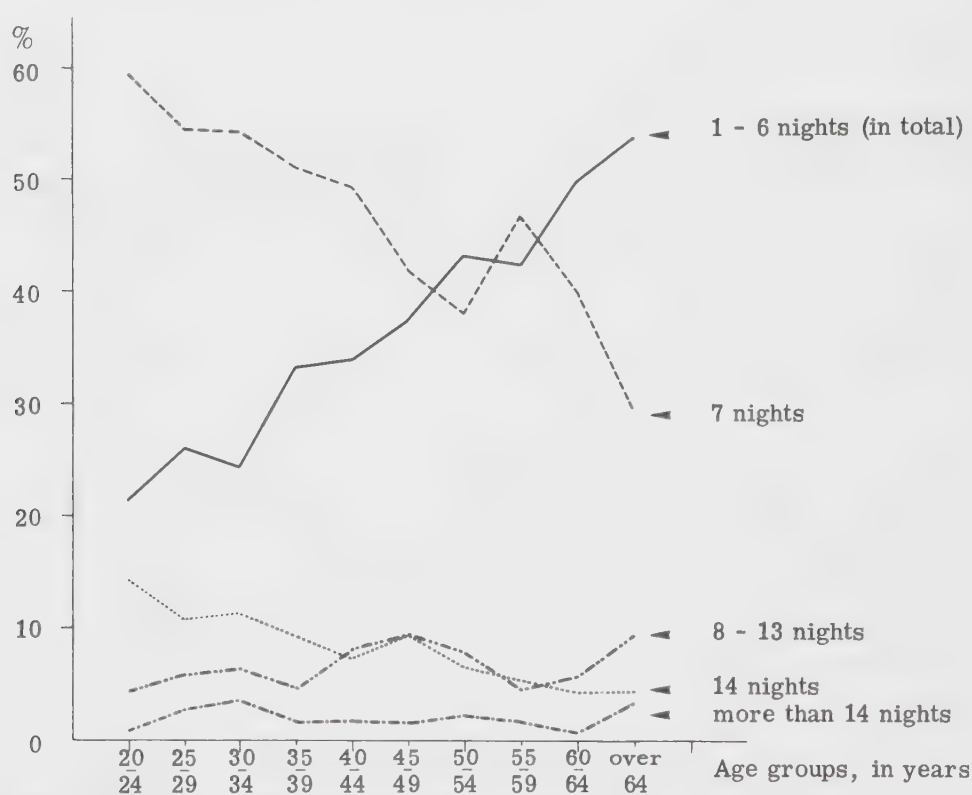


Table 1-27: see appendix 1

Table 1-28 (appendix 1)

FIGURE 24

Relative proportions of major occupational groups, per nationality

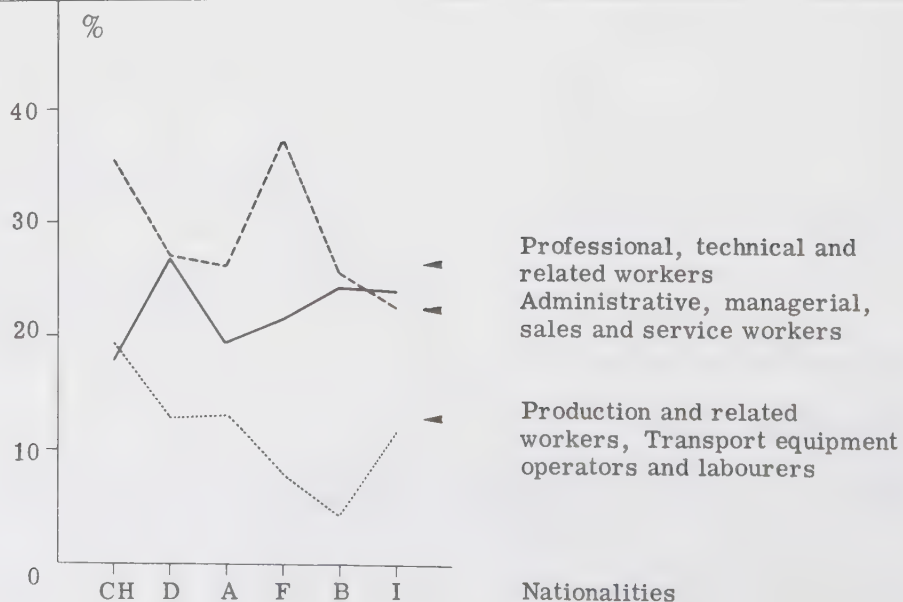




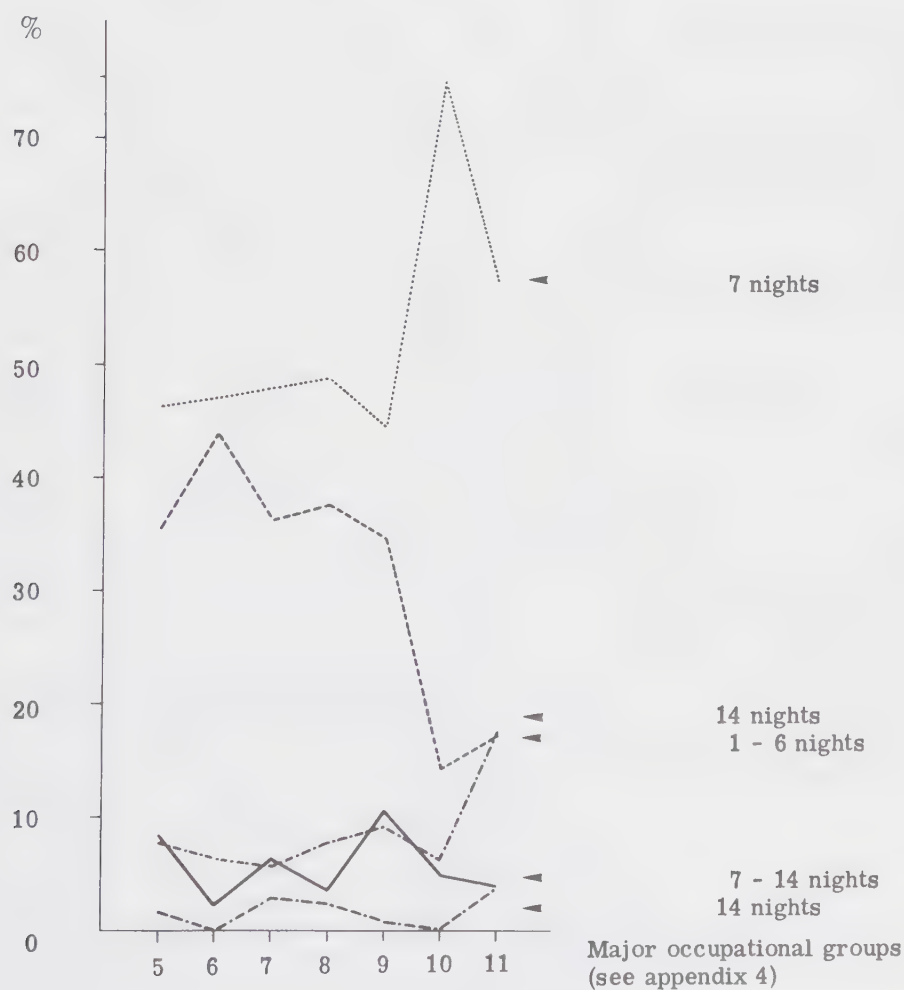
Table 1-29 (appendix 1)

Production workers tend to choose single-destination packages (only Bangkok, 1 or 2 weeks) (44.5 %) while the percentage of other professional groups lies between 30.3 % (service workers), , 35.7 % (professional workers), and 36.0 % (agricultural workers). Administrative, sales and service workers choose to spend the whole vacation at the seaside relatively more often than professional, clerical and production workers.

Table 1-30: see appendix 1 (compare with Table 1-15)

Table 1-31 (appendix 1)

FIGURE 25 Duration of stay in Bangkok, per major occupational group



1.333. "Universe"- and "sample"-data: A comparison

Figure 26a

Data about the universe  
(N = 4959)

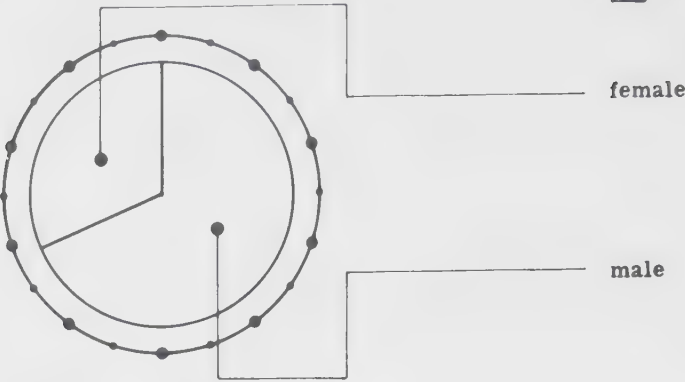


Figure 26b

Data about the persons who  
participated in the test  
(N = 211)

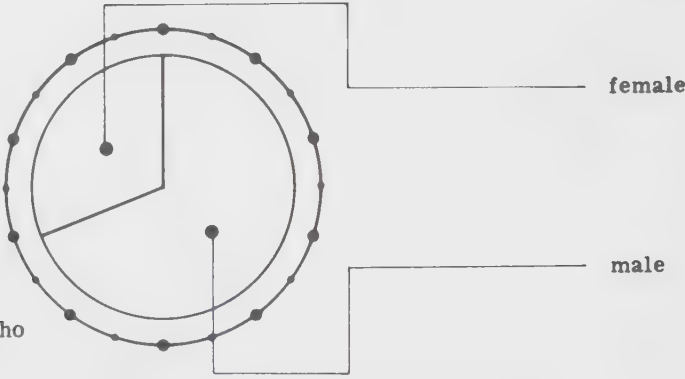


Figure 27a

Data about the universe  
(N = 4959)

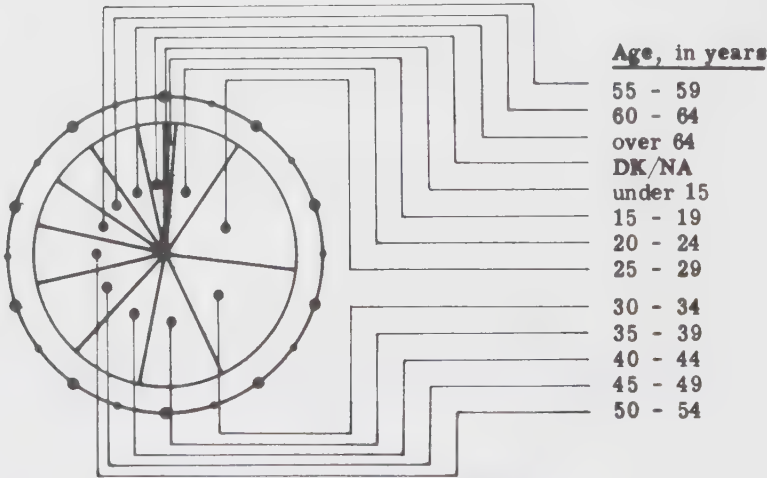


Figure 27b

Data about the persons who  
participated in the test  
(N = 211)

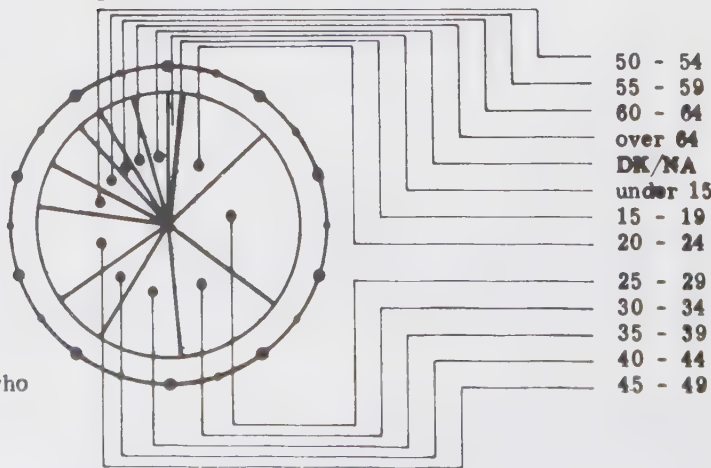
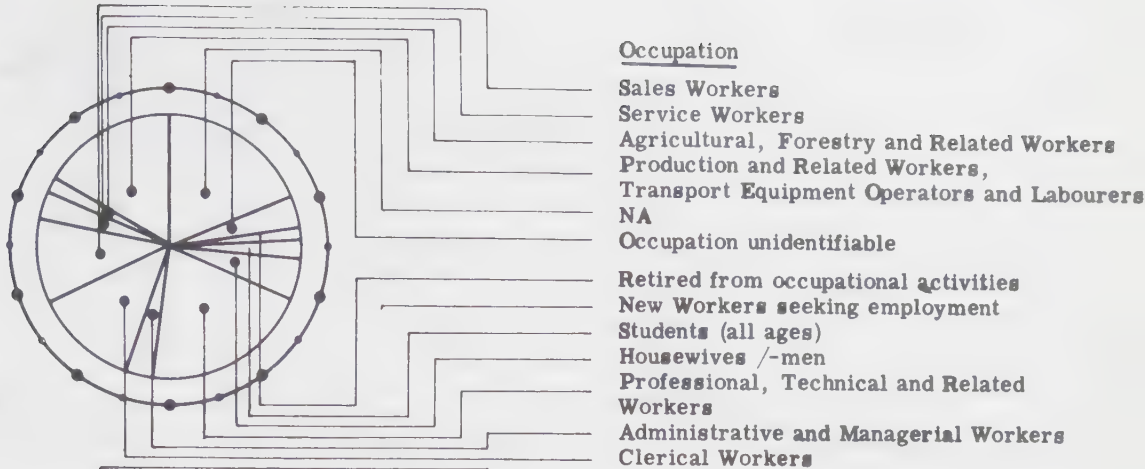
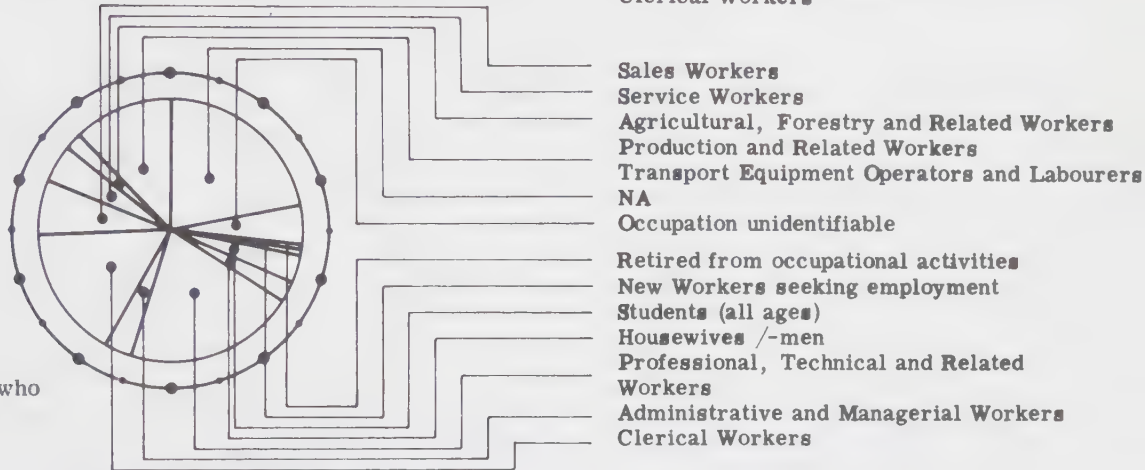


Figure 28a



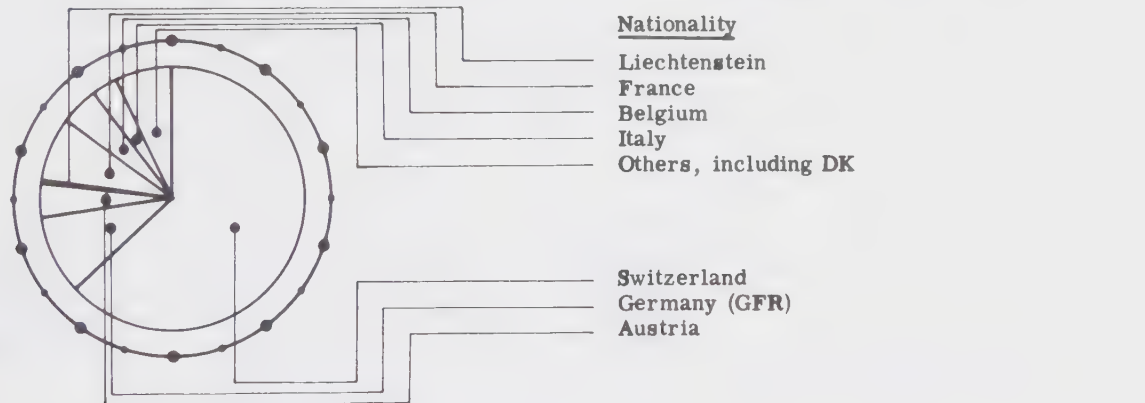
Data about the universe  
(N = 4959)

Figure 28b



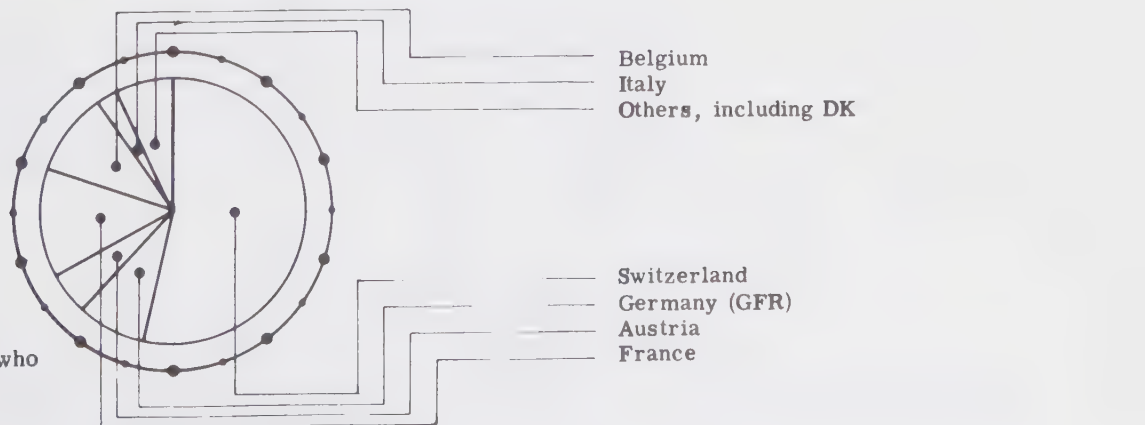
Data about the persons who  
participated in the test  
(N = 211)

Figure 29a



Data about the universe  
(N = 4959)

Figure 29b



Data about the persons who  
participated in the test  
(N = 211)

Figure 30a

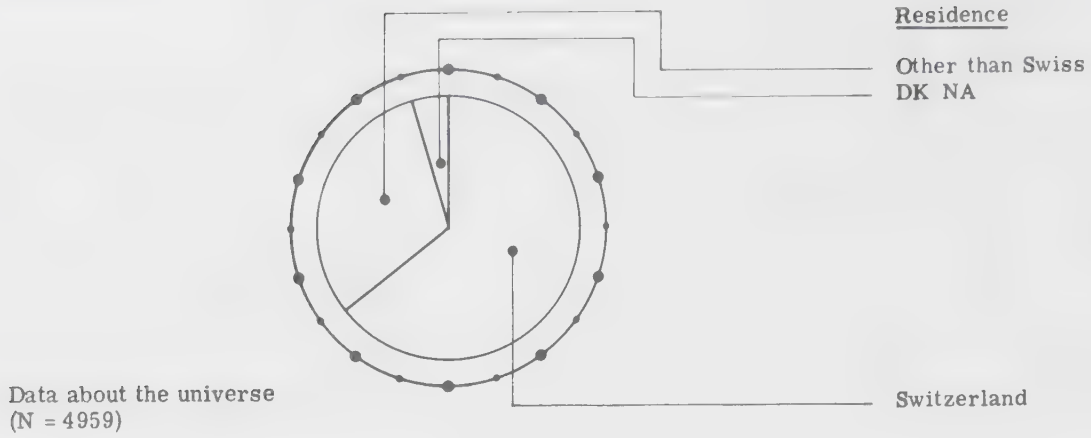


Figure 30b

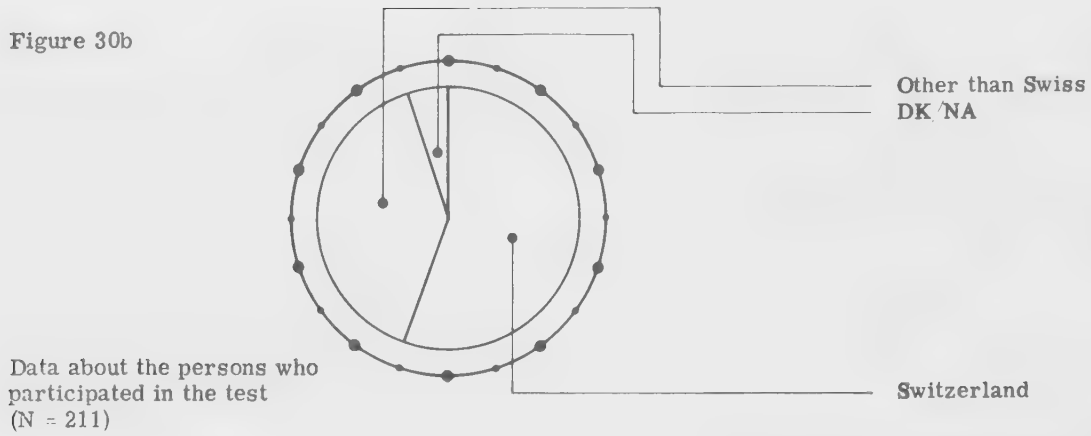


Figure 31a

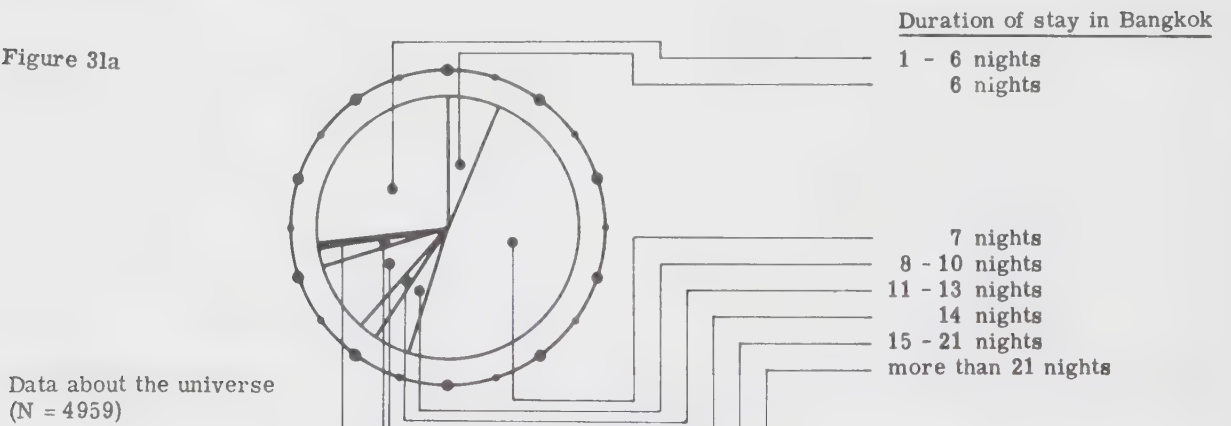


Figure 31b

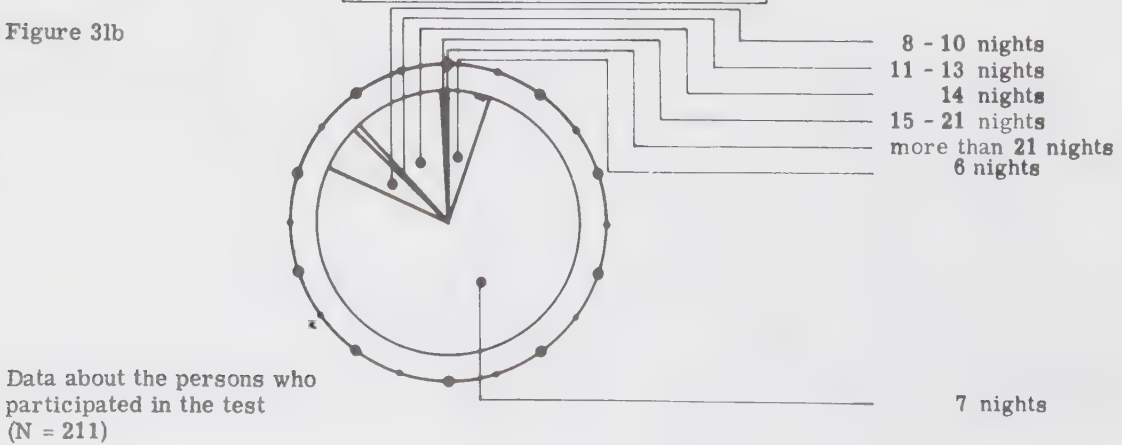
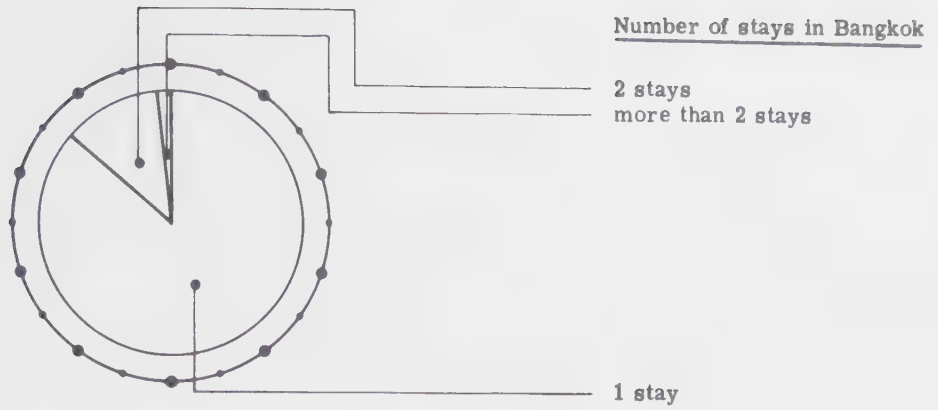


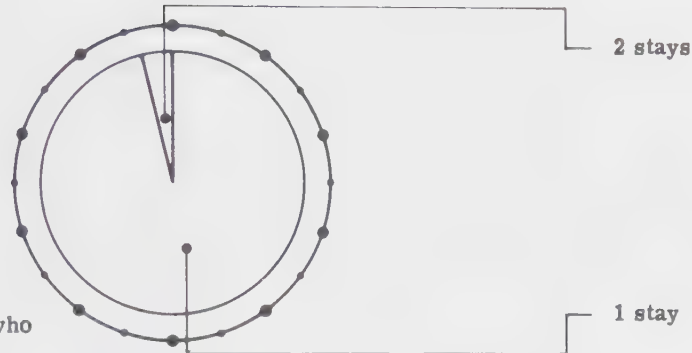


Figure 32a



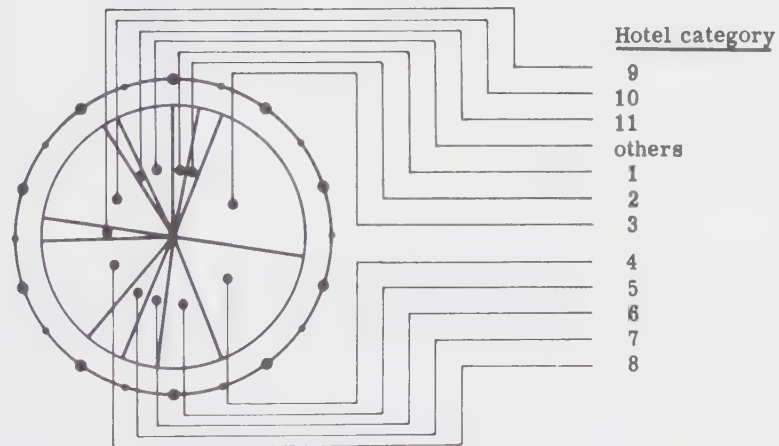
Data about the universe  
(N = 4959)

Figure 32b



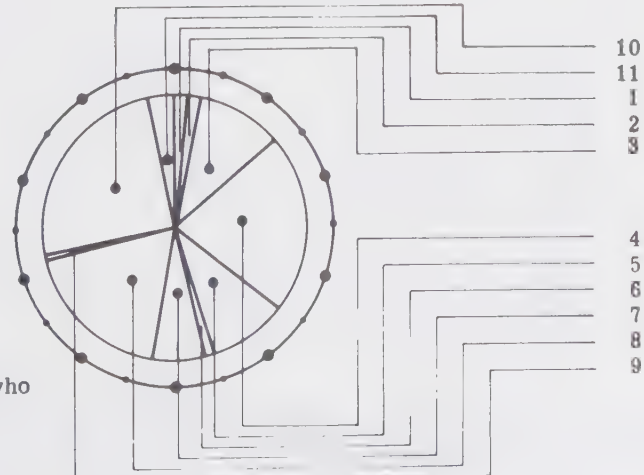
Data about the persons who  
participated in the test  
(N = 211)

Figure 33a



Data about the universe  
(N = 4959)

Figure 33b



Data about the persons who  
participated in the test  
(N = 211)

1.4. Visitors' profile 1972/73: For comparison

Table 20 Visitor's profile 1972/73 (all visitors): for comparison

|                              |         |                                 |         |
|------------------------------|---------|---------------------------------|---------|
| 1) By Mode of Transportation |         | 5) By Type of Accommodation     |         |
| Air                          | 74.29 % | Hotel                           | 85.65 % |
| Land                         | 25.01   | Friend's House                  | 5.76    |
| Sea                          | 0.70    | Others                          | 8.59    |
| Total                        | 100.00  | Total                           | 100.00  |
| 2) By Sex                    |         | 6) By Reason for Visit          |         |
| Male                         | 65.63 % | Holidays                        | 73.77 % |
| Female                       | 34.37   | Business                        | 12.20   |
| Total                        | 100.00  | Others                          | 14.03   |
| 3) By Age                    |         | 7) By Port of Embarkation       |         |
| Under 15                     | 2.00 %  | Hong Kong                       | 20.18 % |
| 16-25                        | 10.09   | Singapore                       | 12.73   |
| 26-35                        | 25.54   | Manila                          | 1.46    |
| 36-45                        | 22.52   | Tokyo                           | 9.12    |
| 46-55                        | 18.63   | Penang                          | 2.71    |
| 56-65                        | 11.53   | Kuala Lumpur                    | 2.29    |
| Over 65                      | 9.69    | New Delhi                       | 2.16    |
| Total                        | 100.00  | Saigon                          | 2.00    |
| 3.1.) By age (1972-1973)     |         | Rangoon                         | 1.82    |
| Under 15                     | 2 %     | Vientiane                       | 1.52    |
| 16-25                        | 12      | Djakarta                        | 1.39    |
| 26-35                        | 26      | Others                          | 42.62   |
| 36-45                        | 21      | Total                           | 100.00  |
| 46-55                        | 19      |                                 |         |
| 56-65                        | 14      |                                 |         |
| over 65                      | 6       |                                 |         |
| Total                        | 100     |                                 |         |
| 4) By Occupation             |         | 4.1.) By Occupation (1972-1973) |         |
| Employee                     | 22.38 % | Employee                        | 26 %    |
| Commerce                     | 11.48   | Professional                    | 12      |
| Housewife                    | 10.44   | Commercial                      | 11      |
| Other Prof.                  |         | Executive                       | 9       |
| Career                       | 9.19    | Student                         | 8       |
| Executive                    | 8.47    | Others                          | 34      |
| Government Official          | 8.02    | Total                           | 100     |
| Student                      | 6.29    |                                 |         |
| Engineers and Technician     | 5.44 %  |                                 |         |
| Professors and Teachers      | 2.76    |                                 |         |
| Others                       | 15.53   |                                 |         |
| Total                        | 100.00  |                                 |         |

Sources: Tables 1 - 7: World Bank, 1975.  
Tables 3.1 and 4.1: TOT/NTD, 1975.

## 1.5. Pacific Visitors Survey 1968: The image of Thailand as held by European travellers

### 1.51. Methods of analysis

"Respondents were shown a list of 24 characteristic conditions and attributes and asked to indicate which ones they felt, believed, or knew to be descriptive of a country. Whether visited or not, respondents selected as few or as many items as they wish to indicate their perceptions of the country."

"The discrepancy between the perceptions of the attributes and conditions of each country by its visitors and its non-visitors is crudely indicative of a communications gap. If visitors ascribe an attribute to a country and non-visitors do not, then the experience of having been there is making the tourist aware of the attribute. If an attribute exists and it can be perceived by the visitor, then efforts can be made to communicate the existence of this attribute to the non-visitor. If the communications effort is effective, it should work to increase the non-traveler's interest in becoming a tourist to the country.

At the same time, the items which compare the profile do indicate that it is that the country offers to the traveler and how well it offers it ... The question then becomes -- are these the conditions and values that will attract the tourist and is it what will interest him once he is here. Since not all travelers want the same things, countries should be studying their assets, learning how to minimize or remove their negatives, and understand to whom they should target their appeal. This study represents a start in that direction but each country needs to undertake research which will more effectively generate pertinent information to guide tourism decisions.

Each respondent was shown a list of 12 descriptive conditions or characteristics which had been identified in prior research as factors which influence the selection of a travel destination and also help determine how well a destination will generate satisfaction in the visit there. Respondents rated each of these items for its personal importance to him in traveling or visiting abroad. Special analysis of the respondent ratings of these conditions indicate that the 12 items formed 4 distinct groupings."

"The answers to ... three questions on travel experience and travel interest allowed for classifying respondents into one of the four following groups for each of the 26 Pacific countries.

Visitors to the country who were interested in revisiting the country:

- a. Yes
- b. No

Non-visitors to the country who were interested in visiting the country:

- c. Yes
- d. No

The combination of these characteristics of travel experience, interest in country, which define the groups labeled a, b, c, and d, permit a development of several indices derived from the comparative membership size of these groups for each country. These derived indices appear to measure the performance of the country in several important travel vacation dimensions. The indices are:

#### A. Attraction index:

Per cent of respondents in groups a and b for country to total number of respondents in the sample (groups a/d).

Measures the success of the country in having attracted the Pacific traveler to its shores.

#### B. Satisfaction index:

Ratio of group a size to group b size for country.

Measures the success of the country in pleasing the visitor.

#### C. Appeal index:

Ratio of group c size to group d size for country.

Measures the interest of the non-visitor in becoming a visitor to the country.

#### D. Potential index:

Ratio of groups a, b size to groups c, d size for country.

Measures the "pull" of the country on the average Pacific traveler.

---

Source: PACIFIC AREA TRAVEL ASSOCIATION, 1968.

For this analysis, the Pacific/Hawaii survey set of respondents (n=1734) was combined with the European survey set of respondents (n=340).

---

These indices, referred to as Performance indices, give a rough profile of each country's travel/vacation effectiveness.

In evaluating the performance profile of each country, both the absolute magnitude of the index and the country's order in each performance dimension are given. The rank order position of the index for the country is given a comparative interpretation:

| Ranks   |      |                       |
|---------|------|-----------------------|
| 1 - 3   | I.   | High                  |
| 4 - 8   | II.  | Above average         |
| 9 - 13  | III. | Average, above median |
| 14 - 18 | IV.  | Average, below median |
| 19 - 23 | V.   | Below average         |
| 24 - 26 | VI.  | Low                   |

Per Cent Rating Condition as "Very important"

| Desired Values             | Europe |       |
|----------------------------|--------|-------|
|                            | Base   | (304) |
| warm, friendly people      |        | 48    |
| comfortable accomodations  |        | 46    |
| beautiful natural scenery  |        | 42    |
| reasonable prices          |        | 31    |
| good climate               |        | 28    |
| attractive customs,        |        |       |
| way of life                |        | 29    |
| outstanding food           |        | 27    |
| beautiful creations of man |        | 29    |
| good shopping              |        | 8     |
| exotic environment         |        | 6     |
| exceptional recreational   |        |       |
| facilities                 |        | 5     |
| historical or family ties  |        | 11    |

How a country is seen and reacted to by respondents and how it compares with other countries on its measured dimensions may be thought of as a profile of the country. For this study, the profile of the country is constructed from three major areas of analyzed response.

- the five performance indices constructed for the country
- the "image" of the country represented by the presence or absence of the 12 positive and 12 negative attributes as seen by respondents who have traveled to the country (visitors) and who are therefore considered qualified to report on perceptions about the country
- the differences between the visitors and non-visitors of each country in their perceptions of the country's image - the 24 attributes.

**Performance Indices**

There are five performance indices, four of which (Attraction, Satisfaction, Appeal, Potential) are measurements of the "traffic pull" of the country. The fifth index (Information Favorableness) appears to describe a condition which may have some influence on the "traffic pull" of the country. Collectively, these five indices measure the country's effectiveness in performance.

To better indicate a country's comparative strengths and weaknesses, each index was rank-ordered



among the countries and the rank order position charted. To provide for a better understanding of a country performance, the absolute value of the index also is listed. The absolute value of the index is interpreted as previously described while the comparative value of the index is provided by the verbal description attached to each grouping of rank order position.

## Visitor Image

The collective 24 attributes by which the respondent could describe a country represent the "image" of the country. The per cent of visitors to the country who select each term is listed and the rank order position of the country for each term is graphed. Often, items chosen with lesser frequency may have higher rank order position. Therefore, the best interpretation of the image stems both from the rank order position of an attribute tempered by its absolute percent value.

Using only visitor response to project the country image has the advantage of equating all countries in terms of experience. Since the evidence shows that visitors tend to have more information and respond more positively about the country, any analysis of the country by the total set of survey respondents would provide an incorrect perception of the country's attributes.

## Difference Between Visitor Image and Non-Visitor Image

The response of visitors for each attribute is compared with the response to the attribute by non-visitors to the country. When there is no difference between the levels of (per cent) response of each groups, then the image of the country is perceived in the same way. When the visitor response level is higher for the positive attribute than it is for the non-visitors, it suggests that the attributes are being "experienced" by the visitor. The existence of these attributes for this country needs to be communicated in some way to the non-visitor. This may increase the likelihood that the changed perception of the non-visitor about the country may come closer to matching the respondent value system and increasing travel interest in that country for the future."

### 1.52. Thailand's image: presentation of results

TABLE 21 Thailand: Performance profile 1968

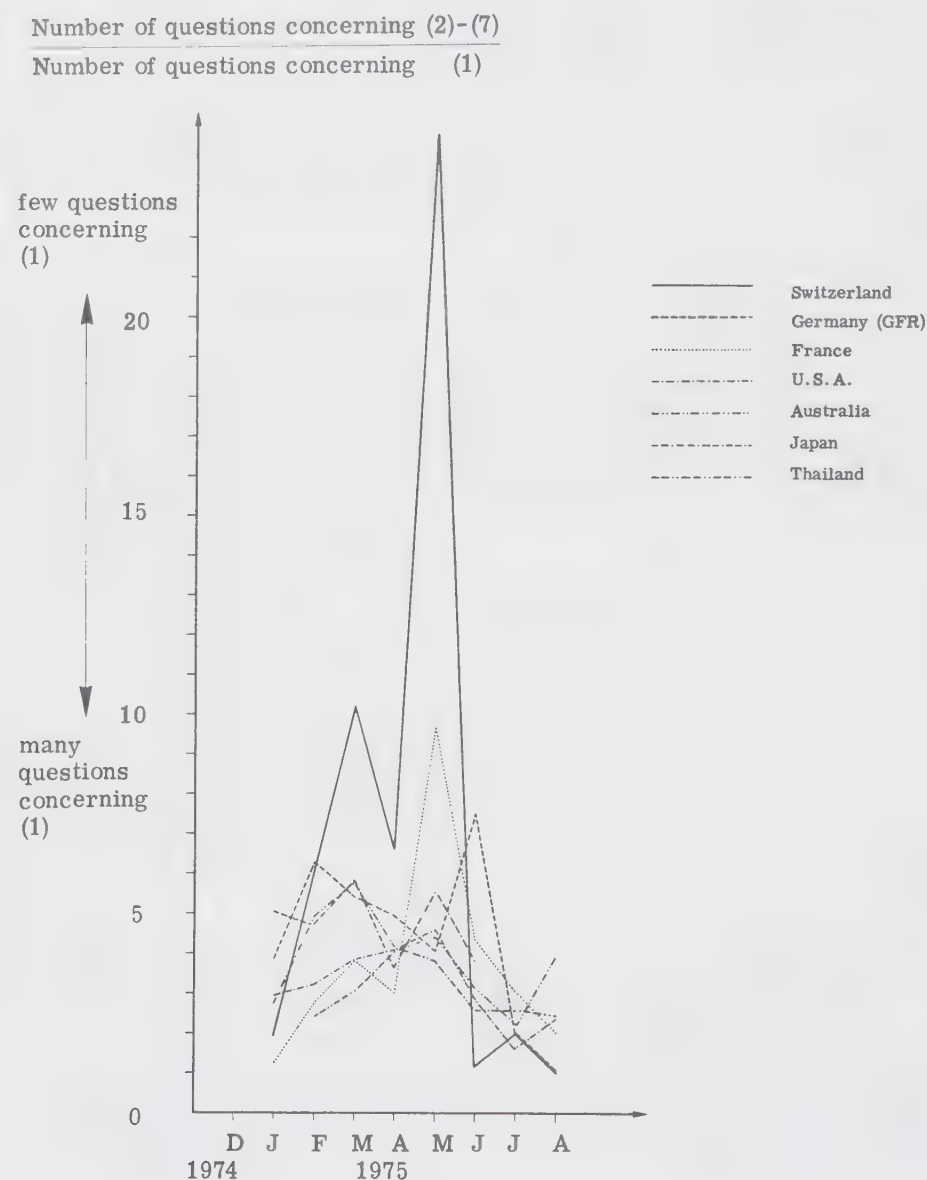
| Indices<br>⇓ |     | I     | II               | III             | IV              | V                | VI    |
|--------------|-----|-------|------------------|-----------------|-----------------|------------------|-------|
|              |     | High  | Above<br>Average | Above<br>Median | Below<br>Median | Below<br>Average | Low   |
|              |     | 1 2 3 | 4 5 6 7 8        | 1 1 1 1         | 1 1 1 1 1       | 1 2 2 2 2        | 2 2 2 |
| Attraction   | 39  |       | ★                |                 |                 |                  |       |
| Satisfaction | 277 |       |                  |                 |                 |                  |       |
| Appeal       | 38  |       |                  |                 |                 |                  | ★     |
| Potential    | 83  |       |                  |                 |                 |                  | ★     |
| Information  | 322 |       |                  |                 |                 |                  | ★     |

TABLE 22 Thailand: Visitor image 1968

| VI             | V                      | IV                     | III                  | II               | I     | %<br>⇓ | Image Difference<br>Visitor Vs. Non-Vis |
|----------------|------------------------|------------------------|----------------------|------------------|-------|--------|-----------------------------------------|
| Low            | Below<br>Average       | Below<br>Median        | Above<br>Median      | Above<br>Average | High  |        |                                         |
| 2 2 2<br>6 5 4 | 2 2 2 2 1<br>3 2 1 0 9 | 1 1 1 1 1<br>8 7 6 5 4 | 1 1 1 1<br>3 2 1 0 9 | 8 7 6 5 4        | 3 2 1 |        |                                         |
|                |                        | ★                      | ★                    |                  |       |        | 21 Good Climate . . . . . ★             |
|                |                        |                        |                      |                  | ★     |        | 36 Btfl. Natl. Scenery . . . . ★        |
|                |                        |                        |                      | ★                |       |        | 60 Btfl. Creations of Man. . .          |
|                |                        |                        |                      | ★                |       |        | 16 Outstanding Food . . . . . ★         |
|                |                        |                        |                      | ★                |       |        | 40 Comft. Accom. . . . . ★              |
|                |                        |                        |                      |                  | ★     |        | 54 Warm, Friendly People . .            |
|                |                        |                        |                      |                  | ★     |        | 40 Attr. Cust., Way of Lf . .           |
|                |                        |                        | ★                    |                  |       |        | 44 Good Shopping Facil. . . .           |
|                |                        |                        |                      | ★                |       |        | 3 Excpt. Recr. . . . . ★                |
|                |                        |                        |                      | ★                |       |        | 24 Reasonable Prices . . . . . ★        |
|                |                        |                        |                      |                  | ★     |        | 5 Hist., Family Ties . . . . . ★        |
|                |                        |                        |                      |                  |       |        | 36 Exotic Environment . . . .           |
|                |                        |                        | ★                    |                  |       |        | 13 Problems with Language. .            |
|                |                        |                        | ★                    |                  |       |        | 15 Dirt and Poverty . . . . . ★         |
|                |                        |                        | ★                    |                  |       |        | 7 Poor Food . . . . . ★                 |
|                |                        | ★                      |                      |                  |       |        | 12 Unsanitary Conditions . . .          |
|                |                        |                        | ★                    |                  |       |        | 2 Lack Personal Security . .            |
|                |                        |                        |                      |                  |       |        | 5 High Prices for Food . . . .          |
| ★              |                        |                        |                      |                  |       |        | 0 Rude, Unfriendly People. .            |
|                |                        | ★                      |                      |                  |       |        | 3 Red Tape--Visa, Shots . .             |
|                | ★                      |                        |                      |                  |       |        | 16 High Cost Getting There. .           |
|                |                        |                        |                      | ★                |       |        | 1 Too Commercial . . . . . ★            |
| ★              |                        |                        |                      |                  |       |        | 2 Not Enough To Do There. .             |
|                |                        |                        |                      |                  | ★     |        | 15 Unpleasant Climate . . . . . ★       |

1.53. Need for information, travellers from selected countries

FIGURE 34 Need for information, travellers from selected countries, December 1974 - August 1975 : Bangkok Bank's five Tourist Offices



Questions concerning:

(1) Bangkok and Thailand:

Area  
Art  
Buddhism  
Climate  
Commerce  
History  
Interesting places  
Population

(2) Accommodation

(3) Communications

(4) Tour Agencies

(5) Leisure, Shopping, Entertainment

(6) Customs, Regulations

(7) Business and Enterprises

Source: Bangkok Bank, 1975, internal records, mimeo.

## 1.6. Summary

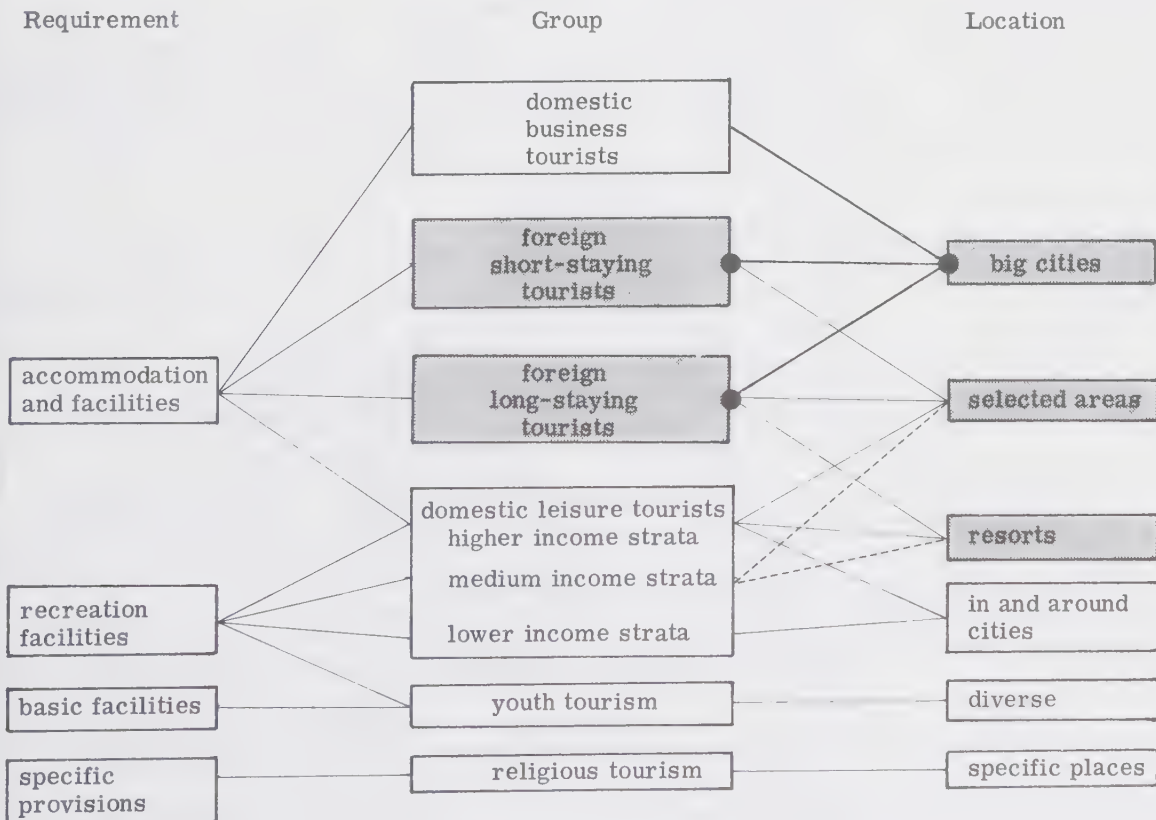
Charter flight arrangements by Swiss tour operators have been marketed both in Switzerland and in several other European countries. The growth of charter holiday traffic has been only one aspect of the country's progress.

It is also developing in stature as a gateway for inclusive tours operated in conjunction with scheduled airline flights. At least 12 charter companies operate regular flights to Bangkok. In addition there are about 38 scheduled international airlines flying into Bangkok, most of which offer special fares for group travelers. On the basis of the data available, the World Bank mission estimates that at least two-thirds of all holiday visitors arriving by air are participating in some form of group-travel arrangements. Onward travel from Bangkok to other East Asian and Pacific destinations is primarily on scheduled airlines at group rates. Many European travelers, therefore embark in Bangkok for destination in other Asian countries.

Bangkok's crossroad position has the advantage that many passengers will not just pass by, but spend a few days in Thailand. On the other hand, holiday-makers coming to Thailand may more easily go on to other destinations.

Tourist itineraries within Thailand vary somewhat, although, Bangkok and the surrounding area (including Pattaya) continues to be the focal point for foreign visitors.

FIGURE 35 Recreation and Tourism profile



Source: Tourist Organization of Thailand/ Netherlands Institute of Tourism Development Consultants, 1975, p. 31.

### 1.7. Touristic definitions

- |    |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|----|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1  | Charter flight         | A flight booked exclusively for the use of a specific group of people who generally belong to the same organization or who are being "treated" to the flight by a single host. Charter flights are generally much cheaper than regularly scheduled line services but are not open for sale to the general public. They may be carried out by regularly scheduled or supplemental carriers.                                                                                                                                                                                                                        |
| 2  | Conducted tour         | A pre-paid, pre-arranged vacation in which a group of people travels together under the guidance of a tour leader who stays with them from the start to the end of the trip. Also referred to as an Escorted Tour.                                                                                                                                                                                                                                                                                                                                                                                                |
| 3  | Destination facilities | All plant and infra-structure available in a country, an area or destination locale.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 4  | F. I. T.               | A tour to a foreign country which has been tailored to the individual's requirements. (Initials stand for <u>F</u> oreign <u>I</u> ndividual <u>T</u> our)                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 5  | Guide                  | Someone who is licensed to take paying guests on local sightseeing excursions.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 6  | Guided tour            | A tour conducted only by local city guides.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 7  | Ground arrangements    | All services provided for the traveler by his tour operator after the traveler reaches his first foreign destination. Does not apply to overseas travel. Also referred to as Land arrangements.                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 8  | Inclusive tour (IT)    | A tour which includes all elements of an itinerary, making it unnecessary for a passenger to spend money for anything except personal extras during the course of the tour.                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 9  | Infra structure        | Organization and integration of access to all physical plant facilities.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 10 | Optional               | Whenever this word is mentioned in travel literature, it means that the traveler has a choice of taking or not taking the service mentioned. If he takes it, there is always an additional charge which is not included in the basic tour price.                                                                                                                                                                                                                                                                                                                                                                  |
| 11 | Package                | <p>A travel package contains all aspects of travel such as air, rail, bus or sea transportation, sightseeing, hotel accomodations. A planned or organized tour sometimes including meals, trips, etc.</p> <p>Generally, packages fall into two distinct categories:</p> <ul style="list-style-type: none"><li>(1) - a ready-made, pre-booked offering which gives reduced cost benefits because of volume movement, and</li><li>(2) - an F. I. T. (Foreign Inclusive Tour) which is tailor-made to satisfy the customer's needs in time spent, quality of accomodation, privacy, personal service, etc.</li></ul> |
| 12 | Package tourism        | <p>Package tourism has been created in order to correspond with the type of tourism which is subject to investigation in the present study.</p> <p>The term's principal distinctions towards the term package as defined before are:</p> <p>The meaning of package here is restricted to ready-made travel packages primarily to fit the pocket books of purchasers, not to satisfy their needs, furthermore without the inclusion of F. I. T. and IT and</p>                                                                                                                                                     |



with optional sightseeing excursions.

A schedule, outline or plan of procedure for an advertising campaign, sales promotion, dealer and purchaser helps, etc.

Specified time usually included in most planned tours to allow the traveler time to relax and/or shop and visit places of interest not included on the tour.

It is also associated with leave-taking by servicemen stationed in places other than their home towns.

A reduced, round-trip fare available on specified dates, and between specified times, only to those passengers who purchase pre-planned, pre-paid tour arrangements prior to their departure.

A professional employee of a tour operator who accompanies a group on tour. Not to be confused with Guide.

One who controls, directs, and manages an enterprise with judicious economy and care.

A company which specializes in the planning and operation of pre-paid, pre-planned vacations, and which makes these available to the general public through travel agents.

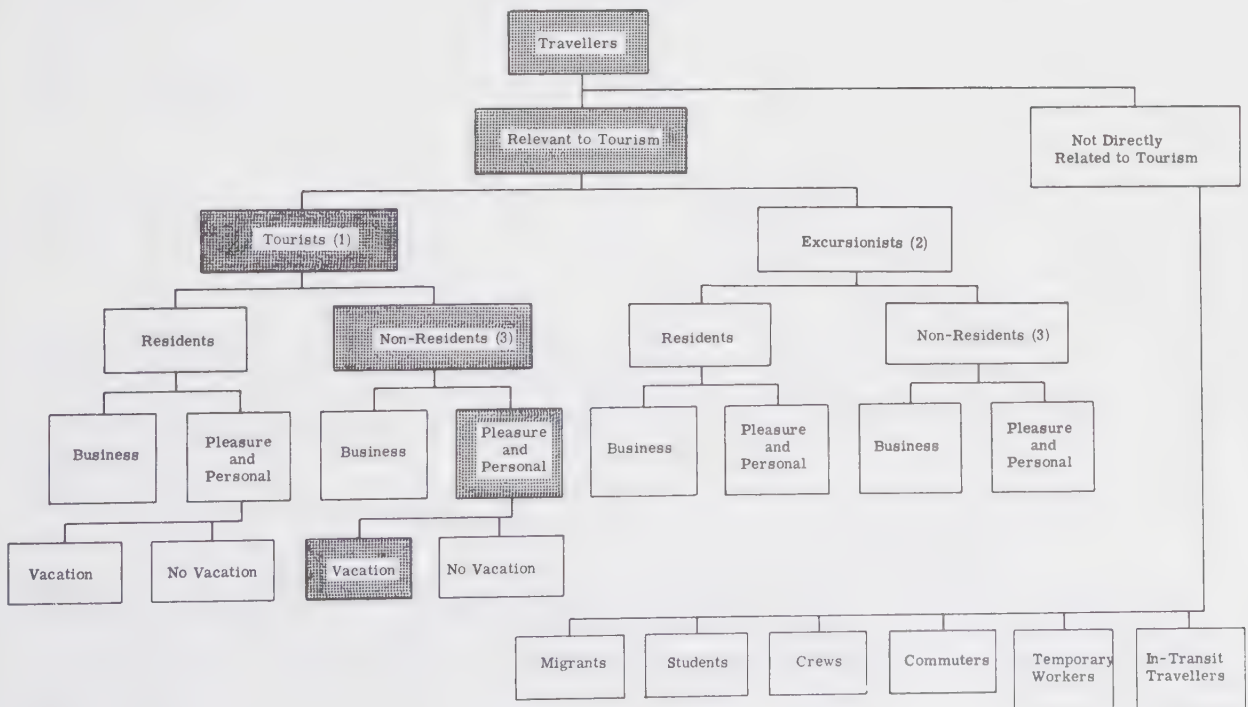
A travel plan which includes most elements of a vacation, such as transportation, accomodations, and sightseeing.

The practice of touring or traveling for pleasure or recreation and the guidance or management of tourists as a business.

One who makes a tour, traveling from place to place for pleasure. For comparison with other types of travelers, see the following graph:

FIGURE 36

DIAGRAMMATIC PRESENTATION OF THE CLASSIFICATION OF TRAVELLERS



(1) One or more nights stay

(2) Arrive and depart same day

- |    |               |                                                                                                                                                                                                                                                                                                |
|----|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 22 | Travel agent  | A person, firm or corporation qualified to provide tours, cruises, transportation, hotel accommodations, meals, transfers, sightseeing and all other elements of travel to the public as a service.                                                                                            |
| 23 | Visitor plant | All accommodation, trains, buses, etc., parks, points of interest, etc., in a destination area.                                                                                                                                                                                                |
| 24 | Wholesaler    | A travel-oriented organization which creates and presents ready-made travel packages such as tour packages or tailor-made travel programs exclusively for or at the request of a travel retailer (travel agent).<br>The travel agent communicates with the person who buys the travel package. |

(PATA, Pacific Area Travel Association, 1970, and The Tourism Research Planning Committee (Canada), 1975)

## PART 2. THE THEORETICAL PERSPECTIVE: DISPOSITION AND HYPOTHESES FOR THE STUDY

### 2.1. Introduction

#### 2.11. A historical review of the topic and development of perception- and assessment-studies

In the forties and early fifties two important advances were made toward the development of a concept of a "perceived environment". In 1947, MAC LEOD, a psychologist, proposed that "psychological geography" dealing with "what is actually there for the individual" should be investigated. He questioned therefore the orthodox geographical approach to man/land relationships.

In the same year, WRIGHT introduced the term "geosophy" and wrote:

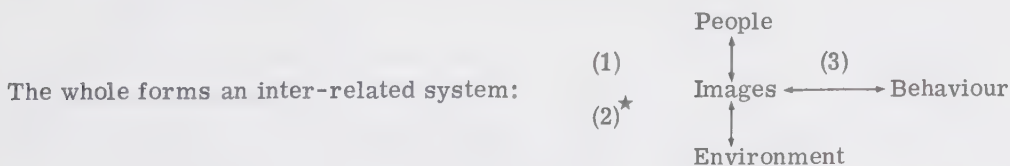
"Taking into account the whole peripheral realm, it covers the geographical ideas, both true and false, of all manner of people - not only geographers, but farmers and fishermen, business executives and poets, novelists and painters, Bedouins and Hottentots - and for this reason it necessarily has to do in large degree with subjective conceptions." (WRIGHT, 1947, p. 12)

This discipline of geosophy would be concerned with "man's sense of (terrestrial) space".

But the term "geosophy" did not catch on, and will not be used here. Nor did the term proposed by KIRK, who wrote of the "behavioural environment" as an internal environment which conditions behaviour, and which is as much the product of group culture as of the act of observing the physical environment (KIRK, 1951). He argued that the major division in geography should be between the "Phenomenal Environment" and the "Behavioural Environment". (For more elaborate description, see BROOKFIELD, 1969, WOOD, 1970, DOWNS, 1970).

KIRK'S Behavioural Environment corresponds to the psycho-milieu proposed by H. and M. SPROUT which, for any individual, consists of "images and ideas, derived from some sort of interaction between what the individual selectively receives from his milieu ... and his scheme of values, conscious memories, and subconsciously stored information". (SPROUT, 1965, p. 27 ff.)

R.M. DOWNS expresses the same ideas as an interrelated system:



In order to break into this system one must study the images, which are the points of contact between people and their environment (DOWNS, in WOOD, 1970, p. 131).

The investigations in the present study will focus on the relationship (2)\* of DOWN'S system mentioned above.

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Historical summaries and theoretical approaches are to be found in BROOKFIELD (1969), SAARINEN (1969), DOWNS (1970), DOWNS and STEA (1973).

Notes about parallel streams in other social sciences: See BROOKFIELD (1969), MURTON (1972), DOWNS (1970).

A large scale bibliography of works having any conceivable bearing on environmental perception is in preparation by BOWDEN, KATES and LOWENTHAL.

In 1956, BOULDING proposed a discipline of "eiconics" which would focus on the study of images and perception and would provide an integrative field for all behavioural scientists. It is, however, only recently that the growing interest in this field among non-psychologists has become apparent. BOULDING illuminates his thesis in the foreword to DOWNS and STEA that "spatial isolation" of the disciplines is a characteristic feature:

"But it is remarkable, and perhaps another symbol of the spatial isolation of the disciplines, that I am the only one out of forty-five authors contributing to both this volume (DOWNS and STEA, 1973, the author) and the Spradley volume".

Much of the thinking concerned with the geographical interest in perception, especially of this opening period, was summoned up in LOWENTHAL's major paper on personal and universal perception of the world (LOWENTHAL, 1961). As BROOKFIELD expresses it: "Lowenthal's paper may perhaps be regarded as the real bridge between the older and the modern approaches to perception in geography. But his main concern was with aesthetics and the personal view, with variations in that view and their origins." (BROOKFIELD, 1969, p.57).

The real significance of LOWENTHAL's paper lies rather in its introduction presenting the significant contributions of psychology rather than in its own somewhat esoteric conclusions.

Empirically the real starting point seems to be the work of WHITE, BURTON, KATES and their collaborators on the hazards of flood damage in North America (WHITE, 1961; KATES, 1962; BURTON and KATES, 1964). During this undertaking they built up a questionnaire methodology which incorporated elements of psychological inquiry. SAARINEN (1966) carried this approach an important stage further by introducing thematic apereception testing, and the quantitative study of drought. From the same Chicago school, LOWENTHAL, YI FU TUAN, BECK, SONNENFELD, KATES, APPLEBYARD, and LYNCH followed (see LOWENTHAL, 1967).

A related, but distinct contribution to the study of perception and the perceived environment is being made by GOULD, in collaboration with HAGGETT. GOULD's mental maps (GOULD: 1966a; 1966b) employs in "residential desirability" a parameter which is itself a generalisation of perceived environmental elements. He treats this parameter cartographically, using principal components analysis and isolating the common or general elements from the random noise. This tool is flexible as to scale and can be employed on different levels (towns, nations, continents).

A less descriptive and more operative approach appears in the work of WOLPERT (1964) who used the concept of "satisficing behaviour" as developed in part by psychologists (see p. 58).

In all this work, descriptive and analytical, the mutual interrelation of the real environment, perceived environment and human activity emerges only in a shadowy, or at best halting manner. BROOKFIELD expresses his opinion on the problem as follows:

"It becomes evident that this is an extremely difficult field to handle in behavioural research, and that while the significance of perception emerges equally positively from quantified and non-quantified research, the manner in which the system operates fails to emerge sharply except in quite restricted contexts." (BROOKFIELD, 1969, p. 61)



Up until now only geographers have been introduced, but a brief perusal of some recent psychological literature suggests that psychologists are increasingly interested in the influence which perceptions of the surrounding environment have upon man's behaviour. Other writers bring disciplinary biases with them: ORLEANS relies on insights from sociology, BRIGGS from geography, and APPLEYARD from planning. TOLMAN, PIAGET and WERNER contributed to cognitive spatial representations. The recent empirical explorations of cognitive representations draw heavily upon the "classic" psychological theorists.

"However, even this apparently unified source has led to a divergence of emphasis - Kaplan and Lee both draw inspiration from physiological psychology; Lundberg and the Swedish investigators rely upon psychophysics, a reliance shared by Briggs and Lowrey; Appleyard has employed cognitive, learning, and perceptual psychology. Recent work into how environmental cognition develops has considered theoretical views in developmental psychology and ethnoscience" (see DOWNS and STEA, 1973, chap. 14)

PARK, the first sociologist to undertake a systematic research program into urban life, saw the city not only as a physical terrain but as a "state of mind", as symbolic space filled with significant artifacts and institutions (PARK, 1925, p. 1; WOHL and STRAUSS, 1958, p. 523), whereas LYNCH saw images as primarily the product of a city's form and scale. He was interested in how people make sense of the vast amount of visual information in a city (LYNCH, 1960).

The result of these problems can be summarized as follows: work on the cognitive representation of man's spatial environment has identified interesting consistencies among phenomena, but has not developed any theoretical frameworks providing the necessary explanation or prediction.

"However, we must temper this gloomy assessment by recognizing that such a stage is inevitable and normal" (DOWNS and STEA, 1973, p.2).

The purpose of this theoretical introduction is to present and discuss the relevant issues necessary for any interpretation of the empirical results.

The lack of a tested theoretical framework is a serious problem with many significant consequences:

- (1) Difficulties of terminology affect not only our formulation of problems but also our methods of tackling them. The immediate consequence is to state in detail if we are concerned with perception or cognition, with attitude or preference.<sup>1)</sup>
- (2) There are obstacles in the context of research design. We lack in a priori hypotheses as well as standardized and validated measuring procedures.

This chapter shall touch upon 4 theoretical points:

- (1) Models of man
- (2) Models for human decision making
- (3) Personality theory and the Extent of Agreement, a digression
- (4) The importance of information theory

## 2.12. Models of man

### 2.121. Introduction

Scientific psychology studies the human being as an organism with sensory receptors, reflexes, and cognitive processes that are taken to be universal.

The behavioural revolution represents a fundamental change in the conceptual approach to understanding human spatial behaviour, and characterised by a more realistic view of man, in combination with the use of quantitative methods. Prior to this, man was regarded as a "black box" concept; that is, an unknown constant in the study of the environment/behaviour relationship.

The behavioural approach replaces the black box concept of man by a "white box" (DOWNS, 1970, p. 68).

The basic schema for analysis is no longer environment/spatial behaviour, but environment/man/spatial behaviour.

Man therefore becomes an intervening variable, and in this behavioural formulation, he is a significant, it not crucial, variable.

Because our concern is with cognitive factors affecting one aspect of decision-making - vis-à-vis the spatial environment - the following chapter shall review the crucial models of man, illustrating the conceptual extremes.

The following models for human decision-making and human behaviour emerge, -whereby the quotations are taken in part from DOWNS and STEA (1973), DOWNS (1970), BROOKFIELD (1969), LOWENTHAL (1967), YI-FU TUAN (1972), SAARINEN (1969), MURTON (1972), SEWELL and LITTLE (1973).

### 2.122. Models for human decision making

The early twentieth Century saw the emergence of models for human decision-making incorporating or specifically neglecting the psychological component. "Psychoanalytic man, as delineated by FREUD and JUNG, was totally non-rational. His adult behaviour was determined in large part by the (probably unconscious) resolution of psychological conflicts experienced earlier in life, and was influenced by biologically transmitted traces of earlier experiences in human evolution ("collective unconscious" or "racial memory"). External factors were assumed to play a small role in adult patterns of decision-making: social influence was secondary, and environmental influence negligible. The only exception to this latter statement is the work of SEARLES (1960) who incorporated influences from the physical (and spatial) environment into psychoanalytic thinking" (DOWNS and STEA, 1973, p. 3).

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For a summary of environmental psychology, see YI-FU TUAN, (1972)

For specialization: PROSHANSKY, ITTELSON and RIVLIN: Environmental psychology. (New York, 1970)

There is still a debate among social scientists on whether the environment bears important effects on man and society, and it is possible to find researchers taking a whole range of different positions. Among the sceptics there are key writers such as WEBBER, who emphasized the importance of non-geographic space in human relations, and GANS, who believes in the overwhelming importance of social systems-considering the built environment as relatively marginal. On the side of the believers of environmental effects, it is possible to find a growing body of studies in several social sciences, such as, in sociology, MICHELSON's "Man and His Urban Environment", in anthropology, HALL's "The Hidden Dimension" and, in psychology, SOMMER's "Personal Space", to mention only three authors in those fields.

"Classical economic theory proposed an opposite model: man was, for the purposes of economic exchange, considered totally rational and influenced in his decision-making only by objective factors external to himself, of which he had total knowledge. All constraints were completely known and all were considered:

There are two principal species of economic man: the consumer and the entrepreneur. Classical economics assumes the goals of both to be given: the former wishes to maximize his utility, which is a known function of the goods and services he consumes; the latter wishes to maximize his profit. The theory then assumes both of them to be rational. Confronted with a pair of alternatives, they will select that one which yields the larger utility or profit, respectively. (SIMON, 1957, p. 197)

Like the psychoanalytic model, economic man failed to account for much of the variation in human behaviour " (DOWNS and STEA, 1973, p. 3).

"Attempts to consider the finiteness of human rationality in a changing and complex world, the empirical limits upon cognition, and the "objective" weighing of alternative decision criteria led to the principle of bounded rationality:

The capacity of the human mind for formulating and solving complex problems is very small compared with the size of the problems whose solution is required for objectively rational behaviour in the real world - or even for a reasonable approximation to such objective rationality. (SIMON, 1957, p.198)

Behaviour based on bounded rationality may seem "irrational" and may be characterized as such, but the resemblance is only apparent. Rather, the essential characteristics of the cognitive process are its limited ability to cope with and store information and its attempt to form impressions of and tentative decisions about the environment on the basis of limited, fragmentary information under severe time constraints" (DOWNS and STEA, 1973, p. 4).

In the economic model, man maximizes his utility or profit. In SIMON's boundedly rational model, he satisfices, finding a course of action which is "good enough" for the situation as he comprehends it. The limiting assumptions involved in the economic man concept can be replaced by assumptions more in accordance with our present knowledge of man's nature. The satisficer model provides an escape from the rigid constraints of the concept of economic man. By this, a person evaluates alternatives until he finds one matching a broad class of satisfactory outcomes.

"However adaptive the behavior of organisms in learning and choice situations, this adaptiveness falls far short of the ideal of "maximizing" postulated in economic theory. Evidently, organisms adapt well enough to "satisfice"; they do not, in general, "optimize." (SIMON, 1957, p. 261)



Among theorists in psychology, KOFFKA (1935) may have been the first to distinguish between the geographical environment (or absolute space) and the behavioural environment (or relative space), although he acknowledges borrowing some concepts from TOLMAN.

KOFFKA held that the geographical environment is not a stimulus or set of stimuli in itself, but is "stimulus-providing", and that the mediation of the behavioural environment clarifies the relationship between the geographical environment and behaviour:

"Behavior takes place in a behavioral environment, by which it is regulated. The behavioral environment depends upon two sets of conditions, one inherent in the geographical environment, one in the organism. But it is also meaningful to say that behavior takes place in a geographical environment ... (1) Since the behavioral environment depends upon the geographical, our proposition connects behavior with a remote instead of an immediate cause... (2) the results of the animal's behavior depends not only upon his behavioral but also on his geographical environment..." (KOFFKA, 1935, p. 31).

Accordingly, perception of the environment requires man to interpret the physical and social components of his stimulus field. The physical and interpersonal properties of the environment are distributed in space, and personal environmental space is shaped by the configuration of these properties. For KELLY, everyone is a scientist, attempting to anticipate, predict, and control his environment by erecting systems of constructs which serve to channelize his behaviours. He is actively involved in hypothesizing about his environment, obtaining confirmatory or disconfirmatory feedback from the environment and revising, relinquishing or elaborating his system of concepts (or constructs) in the light of such feedback.

A technical discussion of the difference between KELLY's approach to perception and the more stimulus-centred approach of BRUNSWICK appears in ROMMETVEIT (1960).

Whereas KELLY's model of man as scientist has proven to be a most stimulating perspective for the study of individual differences, an alternative model of man as specialist has recently been developed (LITTLE, 1972).

LEWIN, whose association with TOLMAN was closer, stressed the relationship of and distinctions among mathematical space, physical space, and psychological life space, concepts which resemble those of KOFFKA (DOWNS and STEA, 1973, p.5).

"... Behavior in the geographical environment is (thus) the activity as it really is, in the behavioral as the animal thinks it is" (TOLMAN, 1935, pp. 36-37).

According to BECK (in LOWENTHAL, 1967, p. 21), three basic kinds of space have to be conceptualized:

- (1) Objective space
- (2) Ego space
- (3) Immanent space

With this knowledge it would be possible to develop a more fundamental theory of "psychospecialization" which would be based not merely on professional training, experience, and agency allegiance but also on the dimensions of the individual's personality and his broader social role.



## 2.13. Personality theory and the Extent of Agreement (EoA), a digression

The purpose of the following section is to present the potentially important factors contained in the EoA (Extent of agreement on the evaluation of different (simulated) parts of the townscape) which must be accepted as effective under the concept of personality.

Depending on which of the following approaches is chosen, this presentation must be more or less detailed:

(1) In environmental-perception studies the observers' descriptions of land - or townscape (s) are treated as properties of the observers.

The variables in form of personality properties play the crucial role in the analysis of processes and factors influencing observer responses to landscape. The question in this case would be: Do individuals who rendered the same type of landscape description display other distinctive characteristics?

Personality is a human intellectual creation. This means that we should study the development and use of the word and what it signifies in the same way we would analyze any other human behaviour.

There appear two tasks: (1) to describe what the concept should achieve

(2) to determine the specific characteristics of the concept

Furthermore we have to develop guidelines for what we wish to accomplish when we use the concept by

(1) evaluating what presently exists

(2) providing standard for evaluation of suggested revisions, reformulations, and replacements of what currently exists.

Instead of asking if an abstraction is right or wrong, we ask what it purports to do and what it actually does.

We will outline a method and endeavour to adhere to it. But the method we select and the values from which it is derived represent a particular viewpoint.

The focus in psychology is on the individual, but what data about him should be collected?

Since assessment should be approached from a systematic and scientific point of view, we must give operational definitions of the major concepts introduced - behaviour, personality, and landscape dimensions. At the moment we shall concentrate on definitions of personality and cite hereby the most recent descriptions:

SARASON (1972): "We shall consider personality as an area of investigation rather than as an entity, real or hypothetical".

PERVIN (1970): "... personality as representing "those structural and dynamic properties of an individual as they reflect themselves in characteristic responses to situations ... personality is ultimately defined in terms of behavior".

People do not operate in a vacuum, but respond to and express themselves in environmental situations.

PERVIN's definition also indicates the investigator's concern that personality should express consistency and regularity. However, PERVIN retains the notion of "enduring properties" of individuals. This aspect of the definition also permeates most other current concepts of personality, such as

HOLTZMAN : "A study of structure deals with a description of personality and the organization (1965) and measurement of its more stable components. Dynamics, on the other hand, is concerned with the functional interplay of forces within the individual as he copes with the environment."

LUNDIN (1969): "... personality is "that organization of unique behavior equipment an individual has acquired under the special conditions of his development. " This definition includes a more refined way of saying that the individual has enduring properties.

Personality, thus, is an intellectual creation of man. It is an abstract way of expressing the individual's characteristics or the regularities of his behaviour. Furthermore, it is meaningful to ask: Under what conditions do we call a person loving, introverted, or creative? If we cannot be sure that a specific act indicates something or its opposite, then description, prediction, and increased effectiveness become difficult. Another set of pitfalls is encountered because of the process of abstraction involved in calling acts loving, introverted, or creative: They all are dependent on the evaluative systems of the observers.

An attempt to achieve a comprehensive analysis of that which is meant with "personality" must begin mainly with the diversity of potentially important variables which describe personality.

"With behaviour in general, the definition of categories, the measurement of variables, and the formulation and testing of hypotheses are not always seen as the provocative and potentially revolutionary activities that they are " ( PARKER, 1975, p. 91).

Experimental psychophysics and Watsonian behaviourism have fragmented the physical environment into discrete quantifiable stimuli in order to study precisely their effect on the human organism. This approach is essential to establishing the dimensions and nature of human psychological functions, such as perceiving, thinking, learning, and feeling. Information enters short term memory through the sense organs by the process of perception or from long term memory by the process of cognition. Cognition refers to the processes of thinking, reasoning, remembering, and conceptualizing used to elaborate, combine, and explore what has been perceived (cf. TESTA, 1974, p.18):

The fact that "it is obvious that affect, cognition, and action are not always highly correlated", leads to a more complex set of relationships. The relationship between attitude and behaviour is no longer a simple one, but is mediated by other factors.

Like perceptions, attitudes develop as a result of past experience. People are not necessarily the best judges of what they need, they have a tendency to prefer what they have known and their views are often incoherent and may be in conflict with one another.

Activities arise from decisions which are based on an appreciation of needs, of the means available to satisfy them, and of the environment within which they are done, all assessed against expectation of results.

Humans can consciously process only a small portion sensory inputs because of their limited span of memory. As a result, cognitive activity is also limited to a small number of items (between five and nine) at any one time. If more items are present, humans respond by grouping, sequencing, or neglecting items.

Individuals demonstrate a consistent mode of perceiving and organizing sensory data which has been termed their cognitive style.

A classification scheme developed by JUNG and described by CAMPBELL characterizes personality as consisting of four major psychological functions.

Two of the functions pertain to perception (sensation and intuition) and two to judgement (thinking and feeling). Every individual tends to develop one style of perceiving and one style of judging while the alternate styles remain in an inferior state of differentiation or unconscious. Thus, the most differentiated or superior functions characterize behaviour.

There are several theories of cognitive consistency (see SCHIFF, 1970, p. 8)

Spatial styles are analogous to characteristic conceptual, expressive, and other personal styles, which are built word upon word, action upon action. The spatial field is differentially charged with meaning from individual to individual, and particular configurations of the spatial field may be important clues to personality.

Each of the sensory modalities breaks down phenomena into sets of components. Individuals and populations tend to differ in their responses to any environment. Some achieve more in environment, some achieve less; some adjust easily to environmental extremes, others adjust only with difficulty.

It has also to be taken into consideration, on the other hand, that men's opinions are affected by their interests. As men will what they think, so in some sense and in some measure do they think what they will. Stereotyped ideas conduct to uniformity of feeling, and emotional contagion is one of the chief sources of collective opinion.

That interest and cognition are intimately interdependent, then, can be taken for granted:

Interest affects cognition: (1) directing it to a certain contact

(2) accompanying and impregnating it with attitudes of favour and disfavour

(3) by weighing the evidence on which it is based

Cognition affects interest: (1) by exciting or depressing it

(2) by knowing it

(3) by illuminating it

(4) by determining the forms in which it expresses itself

But Everyman has to be seen as developing construct systems in a selective fashion, focusing upon certain elements at the expense of others.

This asymmetrical development of constructs is due to differential orientation towards elements in the environment.

We have to note here the unreliability of verbal expression as evidence of the existence of either cognition or interest. (cf. e.g. ROYCE, 1964, WEBB, 1973)

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<sup>1)</sup> cf. for more elaborate description, see e.g. SCHIFF (1970), FULLER (1974).



The same is true, however, in a more modest framework when the wish is to analyze the responses to assessment-objects as e.g. to townscape.

(2) In environmental-assessment studies on the other hand, observers' descriptions of land- or townscapes are treated as properties of the landscapes.

Man is taken to be a complex information-processing system. The messages and the resultant images form the interface or point of contact between the individual and the environment. The idea basic to this view of image/environment relationship is summoned up under the term of "adaptation".

Personal construct theory was developed originally as an alternative to orthodox theories of human personality such as psychoanalysis or behaviouristic learning theory. Personal construct theory assumed psychological man to be the active initiator of his environmental transactions.

BOULDING (1956) states: "The image forms the basis for the behaviour", thus, behaviour is some function of the image of the real world. His basic theme is: man must orientate himself successfully in order to be able to implement decisions as behaviour. He must relate himself to certain abstracted features of the environment.

To understand both decision and action we need to comprehend both surfaces, the image and the real world, and to relate them to one another. This is difficult, not only because we have not yet developed means for the description of the perceived environment in measurable terms, nor even because our own scientific perception of the real environment may be very imperfect.

In general two principles emerge at the interface of man and his physical environments:

- (1) That perception and complex cognitive responses rather than actual environments determine behavioural responses.
- (2) That emotionality and disturbance is reduced to the extent to which environmental control is established.

Since we have chosen the environmental-assessment approach and thereby wish to attempt to interpret explicitly the observer-descriptions as properties of the townscape and since we were forced to apply the "black-box" concept (cf. DOWNS, 1970, p. 68) to man we forego the discussion of detailed personality variables and concentrate on the information theory in the next chapter. This theory is highly important for assessment studies.

But, since no two individuals perceive an environment from exactly the same location simultaneously, and since each bases his interpretation of received information on past experience, the cognitive images of the objective spatial structure of environments vary between individuals to an extent greater than anticipated by variations in geographical locations alone.



## 2.14. The importance of information theory

"The concept of "information" in cybernetics is the term applied to every "physical influence" exerted on a recipient capable of retaining its significance." (MUCCHIELLI, 1970, p. 106 ff.)

From this fact cybernetics proceeded to more specific definitions:

- (1) The "support" of information, also called "form" in the sense of modality, is what conveys meaning.
- (2) The "semantic" of information expresses the structure of meaning, the "meaningful" content of information, its meaning.
- (3) "Information" as such is the combination of support and semantic.

Obviously it is the "semantic" that constitutes the essence of any information. Pieces of information that have the same semantic are called "equivalents". The semantic is a structure of meaning without which information has no informational value. "The truly insignificant does not exist" (MUCCHIELLI).

Everything seems to indicate that information is coded actively by the analyzers (see MUCCHIELLI, 1970, p. 85; BRUNER, 1964, pp. 46 - 47).

The information, therefore, is necessarily "treated" by the recipient so that he may separate the semantic from its support. It is only through and after this operation that the meaning of the information is "received". Hence there is an operational activity on the part of the recipient. There is no information except for a recipient capable of analyzing information in order to be able to locate the semantic in it. This is only possible if the analyzer possesses a range of possible semantic models and a kind of capacity of differentiation armed with criteria of differentiation.

Information is received or sought out by analyzers that obey specific commands of structure and that supply a need for information in a certain field. Meaning must be sought and grasped in all dimensions of the experienced and the perceived, in everything in relation to which the premise is placed.

Since information systems are used, operated, and maintained by people, the design of effective information systems will only result if man's behavioural capabilities are taken into consideration.

The accumulated total lifelong experience of each individual equips him or her with a set of interpretive-evaluative screens through which pass all the environmental experiences perceived through the sense organs.

An inventory of these filters contains the following variables such as:

appreciation of needs, attentiveness, biological functions, culture, customs, desire, economics, experience, faith, Gestalt or pattern seeking function, man's past, man's projects, means available, mood, psychological function, purpose, purpose in life, socio-economic status, temperament, time, utility, value and need, value system etc. All are not independent in their operation.

Interacting with needs, the total stock of information forms the basis for decisions which usually yield results. These are further evaluated to modify future decision, both directly and by modifying the perceived environment and hence the perceived resources.<sup>1)</sup>

Normally, all the active variables are open to change. Information may vary from a variety of causes of external and internal origins. (BROOKFIELD, 1969, p. 63 ff.)

Even though the real environment may in large measure be the creation of human activity upon the natural landscape, it is only the perceived environment that is always and wholly a cultural artifact, part of a separate sub-system in which the sources of information are the main energy flow (cf. BROOKFIELD, 1969, p. 64).

The sources of information must be of fundamental concern. "The perceived environment ... is particularly responsive to changes in the sources of information, while it may even be quite unresponsive to short-time changes in the real environment" (BROOKFIELD, 1969, p. 64).

Each individual's view of the world and portions of it results from possibly unique combination of information received and processed. This information can vary in type and amount, reaching the individual from a large number of sources. Also important in analyzing information is the distinction between true, partial and false information, between imparted and concealed information. This is highly important in understanding the distinction between correct, partial and incorrect perception of particular environmental elements.

The need to relate perceived to real environments is the most serious considerations of all, and presents some acute methodological problems (see chap. 3.3.)

"All one can ever hope really to do ... is to produce a simulation of both the real and perceived environments that will hopefully approximate both, but cannot be regarded as an exact image of either" (BROOKFIELD, 1969, p. 66).

The task related to information is to seek to explain the perceived and assessed environment in terms of the sources of information on which it is based.

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<sup>1)</sup> A comprehensive theory explaining why and how people learn does not exist. The sociopsychological concept of learning seldom serves as the geographer's explicit guide when he studies the man - milieu synergism, and particularly when he traces the movement of people from one environment to another. A move forces them to learn new values and social skills, a foreign "language" suited to an alien cluster of behaviour settings. If the change is voluntary, quick adaptation to the new environment and satisfaction with it are likely to result, unless the expectations have been quite unrealistic. Learning proceeds through experience, imitation and instruction. Each persistent type of behaviour is inextricably tied to a particular structure of space, called "behaviour setting". At present, the only explicit use of learning theory in geography is that of Gollledge (1967), who uses stochastic learning models.

When attitudes are measured, behaviour (the expression called attitude) is measured. This behaviour has impact only when it is related to some further activity.

Many human changes are neither discerned nor discernable. Failure or inability to take these changes into account does not mean they do not exist or are not behaviour. The acts we do not measure or notice have an impact on individuals; they may mediate or be parts of the sequences that lead to the responses we do observe. So many behaviours are occurring at any given time that we cannot process and respond to all of our own and other's acts.

Rather, we are forced by realistic limitations to select a relatively small sample and may well miss important behaviour.

Tests sample behaviour and compare different responses to stimuli. Special theories, such as the functional analysis of behaviour (SKINNER, 1953) may lead to idiosyncratic groupings as do special topics, such as aesthetics. All of these share some common interest; all are eventually relevant to the individual.

That is, we should measure or describe only phenomena that actually exist. Further, what we measure or describe should be germane to the goal in which we are interested.

We are interested in the effects of different conditions on the same person or in differences between homogeneous or randomly assigned groups of people under different conditions. We are interested in differences that are meaningful to our goals.

Our particular concern is with the image as it affects spatial behaviour patterns, namely in the form of hearsay recommendations and their influence on potential tourists. LUCAS and PRIDDLE state that the concept of resources as cultural perceptions seems essential in the study of recreational resources.

Given this view, we will deal with specifics - whether experimental or field observations - to draw general rules that may serve in numerous situations.

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List of variables which must be taken into consideration under ideal conditions:

- (1) Spatial experience (childhood, instruction, professional training, travel)
- (2) Information, Past stimulation
- (3) Dreams, curiosity
- (4) Imitation
- (5) Special symbolic significance
- (6) Fields of interest
- (7) Motivation
- (8) Ideas about space, ideas about what space contains
- (9) Beliefs about existence; beliefs about nature
- (10) Intended space use
- (11) Physiological limitations, psychological limitations
- (12) Perceptual style
- (13) Spatial behaviour
- (14) Ability to orient oneself
- (15) Elements, physical and social factors of spatial concepts
- (16) Ability of evaluated factors and elements to imprint a picture
- (17) Kind and dependency of the evaluations: attempt to measure the will to structure
- (18) Main characteristics which initiate decisions
- (19) Background stimuli
- (20) Meaning of stimuli differing from individual to individual
- (21) Kind of interpretation of certain spatial elements
- (22) Decision points in the process of abstracting and conceptualizing
- (23) Differentiated orientation
- (24) Individual scales of value
- (25) Hierarchy
- (26) Degree of conceptualization
- (27) Filters
- (28) Direction and magnitude of attitudes
- (29) Specific experiences
- (30) Isolation of attitude-objects

## 2.2. The value of land- and townscape resources

### 2.21. Introduction

The value of a given land- or townscape resource to a society is greatly influenced by three factors:

- (1) the availability of the land- or townscape resource in question,
- (2) the inherent attributes or characteristics of that resource, and
- (3) the society's previous and present uses of and attitudes toward that resource.

For the purpose of this study, therefore, the significance of a resource variable was determined by analyzing it in terms of its availability, attributes, and uses.

The relativism of value is by now a cliché of the social sciences. A scale of values may be found in YI-FU TUAN (1972).

The concepts of good are tied to specific instances and are not abstractions. We can select a value and acknowledge that our selection cannot be defended on purely rational or scientific grounds, because we evaluate the value of a value by another value. The point is that the study of good is the study of reinforcing stimuli, whereby reinforcers are defined by their effect on behaviour, not on some other abstract evaluative basis.

Concerning values, cues must be learned and which cues are worth learning depends on what the tourists find reinforcing. In short, our target is the segment of tourists' behaviour that is meaningful to us. Operationally, our target is behaviour that influences us or that we wish to influence.

### 2.22. The significance of resource variables

The striving for objectivity in townscape assessment is an effort not to hide behind pseudoprofessional jargon and by explicating not only conclusions, but more importantly assumptions and processes. In so doing we adopt an approach which uses townscape dimensions that are part of the existing professional domain.

A number of questions remain to be answered, however, in reference to the identification and utility of townscape variables or dimensions.

Among them is the relative operational efficacy of these physical dimensions versus those such as complexity, mystery, coherence, and identifiability, which WOHLWILL categorizes as relating to "information content" (1966).

If either are demonstrated to be more effective predictors of townscape preferences or values, it is important that they be defined precisely and that a means be found to make them operational for practitioners.



## 2.3. General problems

### 2.31. Problems of data collection

The fact that problems of definition or processes of information gathering and analysis may present special difficulties is no reason for excluding leisure from study. Also, the proposition that leisure is not a 'serious' enough subject for study needs to be challenged, if only because of the demonstrably 'serious' aspects of leisure such as planning and the allocation of scarce resources among competing demands.

"But, when someone sets out to gain information about leisure time or activities in comparable ways ... he is not only accumulating usable knowledge - he is open to the accusation of seeking to quantify the unquantifiable, to control spontaneous behaviour, to plan for freedom. The scientific mind (but not necessarily the ... imagination) usually prefers to avoid such paradoxes.

Another reason for the slow development of the (sociology) of leisure is that leisure values and behaviour have commonly been regarded as residual categories of life" (PARKER, 1975).

One of the problems in tourism is that the research depends on cooperation by others even if the data are in public domain. Normally, if one country or city or travel medium does not furnish data in any survey it is simply omitted, even though it may hold a key position in tourism.

The field of international travel is so complex - and unprecedented in its manifestations - that even the mere collection of data and facts is a major task.

Time is provided for only minimal background research. The inevitable constraints of time and money are a concomitant of most such endeavour.

"Since leisure is a sphere of life which is, by its very nature, supposed to be free and uncommitted, there are certain difficulties about applying scientific techniques to the study or the planning of leisure behaviour" (PARKER, 1975 p. 91).

The selection of a suitable sample of respondents presented some difficulties. The only requirement was a reasonably large group of respondents who were, in a sense, willing to spend time being interviewed and tested, so that the photograph method could be validated as a choice for measuring mental images of the urban environment and the resulting constructs examined for variation in relation to environmental data on various profile variables.

The exploratory nature of the study and the decision to use a measurement technique which was accepted and therefore seemed to be optimum from the point of view of application nevertheless made restrictions necessary (between 5 and 15 persons could be handled per departure by the researcher).

An attempt was made, therefore, to maximise the usefulness of this number by selecting respondents in a limited traveller category.

The selection of a tourist class resolves at its simplest into a choice between business and pleasure tourists and, among pleasure tourists, between individual and package tourists. Package tourists were selected for this study. This was expected to have important operational advantages as package tourists are more easily to contact than individual tourists because their programs and accommodations are known and, therefore, their spatial experiences in the destination are more easily to be surveyed.

Other difficulties encountered were:

- (1) in tourism, the possibilities of "storing up" are very limited. Tourists have to be contacted when they fly back, for example, in the middle of the night.
- (2) the tourists' reactions on a first contact are very poor. A second contact, however, makes a stay of more than six nights necessary. Therefore, tourists with shorter stays in Bangkok could not be taken into consideration.
- (3) the time during which the tourists are at the disposal at the airport is limited and may vary.
- (4) therefore, the photograph test presented may not include more than 40 photographs, a rather small sample from the analytical point of view.

## 2.32. Theoretical problems

### 2.321. Introduction

Although the input source is identical, a city-dweller, a tourist, a camera, a cartographer, and a tape-recorder all employ different signatures to arrive at a representation (or form) of a city; yet all of these forms have the same function. Parallel functions do not necessarily imply parallelism of form. The understanding of cognitive representation has been hampered by overlooking this point.

Furthermore, we face the problem of communication, since conceptualisations of the real world differ among people. How can we be sure that the entity we are attempting to measure has an existence, and hence meaning, to those people from whom we are collection data?

The dimensions of meaning along which environmental objects are perceived, evaluated, or appraised, are constructed by people rather than being given in nature.

The cognitive and personality correlates of the scales are still in doubt. There is, as yet, no analysis of cross validating materials.

Organismic variables also influence the perception of the environmental stimulus. The perceiver's physiological and mental state varies over both short and long time periods.

Stimulus meaning and stimulus memory differ from individual to individual.

## 2.322. The problem of measurement

It is obvious that the concept called "value system" will have to be subjected to careful scrutiny. Already attempts are being made to identify the factors which cause people to view the same segment of the real world differently (see chap. 5.1.).

The impact of the physical setting on man is difficult to establish for various reasons, among them that:

- (1) man has a past (often called the "cultural baggage"), and
- (2) man has projects that lie in the future.

Besides, the perceived environment of most people is monistic, and for this reason it is necessary constantly to beware in analysing perception of elements of one or other sort of isolation. "The perception of environment is complex, monistic, distorted and discontinuous, unstable and full of interwoven irrelevancies ... it is far less easy to separate into discrete parts for analysis" (BROOKFIELD, 1969, p. 67).

Similary, no sharp distinction may be expected between visible and non-visible elements of environment.

Here, it is indispensable to point to a fact revealed by the test persons. There exist "shadow zones" (BROOKFIELD, p. 68) in which experience is only occasional, and secondary sources of information, such as hearsay, the spoken and written word, pictures and the like, are as important as experience in providing the basis of perception and assessment (cf. BROOKFIELD, 1969, p. 68).

Many of the problems have to do with measurement. Abstract concepts must be translated into empirically verifiable questions.

KAPLAN (1964, p. 177): "Measurement, in the most general terms, can be regarded as the assignement of numbers to objects (or events or situations) in accord with some rule."

Thus the property or attribute of the object we are measuring is represented in all future manipulations by the measure or number that we assign to it according to our pre-selected rule.

The measurement procedure is an arbitrary operation involving:

- (1) the nature of the objects
- (2) the purpose of the study
- (3) the subjective evaluation of the observer

Measurement is a means to an end and not an end in itself and therefore measurements are made which allow certain hypotheses to be tested in certain ways.

Measurement is possible only because there is a kind of isomorphism between:

- (1) the empirical relations among properties of objects and events and
- (2) "the properties of the formal game in which numerals are the pawns and operators the moves" (DOWNS, 1970, p. 95).

It is here that the crucial link between the conceptual framework and the measurement procedure is found.

Whether we can measure something depends not on that thing, but on how we have conceptualised it, on our knowledge of it.

The essential point is that we are dealing with pre-selected rules and a formal game.



We face basic measurement problems for relating the perceptions of the tourists to the stimulus properties of the environment.

The development of non-metric approaches is still continuing.

"We must not minimise or avoid the obstacles, particularly those of measurement, if research into perception is to become an important area and not just a popular one" (DOWNS, 1970, p. 102).

The measurement procedure is therefore full of decision points for the researcher:

- (1) the particular field of concern has to be isolated.
- (2) after establishing hypotheses, the relevant variables must be explicated, usually via the choice of a particular set of measurement techniques.

If possible, these must be selected with the concept of "multiple operationism" in mind.

"Likewise, even the whole barrage of tests developed by psychologists to measure reaction to environmental stimuli do not necessarily give us answers which have any validity, statistical or otherwise: ... a photograph is a photograph " (MURTON, 1972, p. 5).

At a certain level of sorting, it may be helpful to view the perceived environment in terms of the type of information source that constructs it.

### 2.323. The problems of multiple operationism and conceptualization

There are two other major problems met:

- (1) that of multiple operationism (The problem of multiple operationism is that the measuring instrument and the object being measured (i.e. the individual) interact).
- (2) that of conceptualisation.

The problem of explication via a measurement procedure can lead to an operational definition of a concept by only one type of measuring instrument.

Such variables as pleasantness do not have any direct physical correlates, as for example, does the type of shop variable:

therefore, in studying perception, we are trying to measure variables which exist primarily in the mind of an individual.

The definition of the measurement situation influences the way respondents express their attitudes and therefore verbal attitudes can be either consistent or inconsistent with overt behaviour, depending upon the way respondents define the attitude measurement situation.

Thus we must be constantly aware of both the sources of variation that can effect our measurement situation, and the inferences drawn from the data.

Attitudes, opinions and impressions cannot be observed in the field, but must be approached through techniques of simulation, finally through the medium of spoken or written words, and these mediums may be misunderstood or misinterpreted. But unstimulated, they merely form part of a total conception of the world around, and are diffused and not clearly separated as taxa.

The difficulty begins to arise when we begin to simulate the perceived environment for analytical purposes, and becomes acute when we try to relate perception to reality. It is therefore difficult to determine levels of significance.



"The fundamental problem of integrating conceptual frameworks and measurement procedures seems to be the most formidable obstacle in the development of theory in geographic space perception. If we do not make an extended effort to understand the nature of this relationship and its problems, we cannot hope to make any progress.

The role of measurement can be expressed as the crucial point at which ideas are translated into concrete data for later testing and analysis.

Measurement thus serves to link the imagined or conceptual world with the real world" ( DOWNS, 1970, p. 93 ff.).

We need to relate the perceived to the real environment. In a sense this is the most serious consideration of all, and presents some acute methodological problems (see DOWNS, 1970).

Variation in perception is considered to be one major factor in the decisionmaking process. Perfect knowledge is not possible because of unpredictable change and lag in the communication and perception of information. Models which explain the communication process are necessary.

An immense amount of time has been devoured to the construction of complex and elaborate theoretical superstructures based on unexplicated, inexact constructs ( cf.DOWNS, 1970, p.92).

Environmental perceptions do vary, but the variability that characterizes different populations is predictable only to the extent that the major variables of environmental perception and response assessment are understood.

Until we can translate these into testable hypotheses, the development of theory is impossible.

The problem has to be posed, formulated and designed very firmly in man- and environment terms.

But it is difficult to explain behaviour in terms of cause and effect because the intervening variables are not clearly understood.

What is involved is a choice between roughly outlining the significant factors in real human decisions related to environment with the hope of developing theory later.

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"We are only really on the edge of any sort of methodology in this field of inquiry: what has been done is exciting, but it also shows up the limitations of the tools presently available for analysis. We are still in the stage where each new essay into the field reveals fascinating possibilities of new insights" ( BROOKFIELD, 1969, p. 74).

## 2.4. Types of studies

### 2.41. Introduction

The universe of geographical study may be divided into three realms: (LOWENTHAL, 1967, p. 1)

- (1) the nature of the environment
- (2) what we think and feel about the environment
- (3) how we behave in, and alter, that environment

but each of the three requires such different techniques of analysis, that they are, in fact, usually studied by separate disciplines.

Perception studies in geography concentrate on the cognitive understanding that man has of his environment and the way in which this knowledge is stored and organised in the mind: that is, they are concerned with the image of the real world.

The core area seems to lie in the spatial, mappable manifestations of the "man-land" synergism (LOWENTHAL, 1967, p. 2).

The perceived environment has entered geography by so many different routes that little synthesis is yet apparent. The scope of geographical research included under the heading of perception is very large.

The role of geographers will be the familiar one of integrating and synthesising findings from other disciplines but always using these findings in a spatial context.

Most of the literature accumulated in the area of environmental perception deals with the conceptions of the environment held by Everyman. The conclusions presented until now are significant in themselves. When considered together, they raise a lot of new question.

### 2.42. Perception or assessment studies according to scale

Perception studies organized according to scale include:

- (1) personal space and room geography
- (2) perception of architectural space
- (3) neighbourhoods or districts:
  - group belief and organization of the site
  - relation of the site plan community to the larger settlement
  - family organization and household life
  - mental health of individual residents
- (4) paths and roads
- (5) THE CITY
- (6) larger conceptual regions
- (7) the country
- (8) the world

We would like to point out that studies on a larger scale tend to deal more with people's "concepts of environment" than with direct immediate perception.

#### 2.43. Perception or assessment studies according to approach

- (1) "What is the nature of the perceived world?" - Identity and structure of space perception are of main concern. It has proved necessary and desirable to divide space into some form of regional system. One recognises that the need for division stems from a desire to order the knowledge of the world.

This is concerned with the evaluation of the environment via spatial images, and seeks to relate the evaluation to decision making and therefore to behaviour.

The implicit assumption is that the perceived environment is one of the fundamental criteria or bases used in making a decision. - "What are the major features of the perceived world which affect decisions?"

- (2) "Given a set of spatially differentiated objects, how do people assess these on a scale of preference, with relation to some specified behaviour objective?"

Methodologically, these preference approaches are similar, employing a factor analytic model on sets of rank orderings of objects. The intention is to infer the underlying structure, and hence causes, of the spatial patterns of various preferences (see DOWNS, 1970, p. 81).

#### 2.44. Perception or assessment studies according to the field of interest

- (1) Landscape studies
- (2) Hazard studies
- (3) RECREATION STUDIES
- (4) URBAN STUDIES
- (5) Movement studies
- (6) Space preference studies

#### 2.45. Perception or assessment studies according to the degree of complexity of the systems included

- (1) an individual's attitude toward a particular aspect of environment
- (2) an INDIVIDUAL's attitude toward a REGION
- (3) an individual's conception of the man - nature synergism
- (4) the attitude of a people (or peoples) toward environment
- (5) native cosmographies

#### 2.46. Perception or assessment studies according to the kind or medium of presentation

- (1) real environment (e.g. auto tour)
- (2) simulated environment (e.g. pictures)

(Compare: DOWNS, 1970)

## 2.5. Basic research strategies

### 2.51. The strategy of system identification

- (1) is a holistic approach
- (2) isolates relationships and interactions of the spatial environment, types of people, and cognitive response typologies
- (3) considers purely functional relationships
- (4) classifies or presents types of cognitive responses, where such responses are the product of essentially unknown process interactions.

"On this level, a major concern is the establishment of purely functional relationships between, for example, socioeconomic status variables and the cognition of different segments of the environment. One main outcome is a classification or typology of cognitive responses, where such responses are the product of essentially unknown process interactions" (DOWNS and STEA, 1970, p. 7).

### 2.52. The strategy of system analysis

- (1) is a searching analysis of the system interactions between sets of variables, together with a specification of the system parameters
- (2) creates casual models
- (3) uses coded information to form part of cognitive representations
- (4) uses quantitative methods of data analysis (e.g. factor analysis, multiple regression analysis, analysis of variance)

"The focus is on the interactions between sets of variables, together with a specification of the system parameters. Knowledge of relationships and of parameters can lead directly to casual models indicating, for example, the process by which information is coded to form part of cognitive representations... An additional factor associated with the second strategy... is the use of quantitative methods of data analysis. The questions asked in the second strategy cannot be answered satisfactorily without mathematical and statistical analysis. Thus, for example ... factor analytic, multiple regression, and analysis of variance models | have been used |. This is not to decry the first strategy | system identification | as being weaker or less powerful than the second - rather their objectives differ and hence so do the means of attaining them. The relationship between the two strategies represents an overlap between two distinct stages of growth in studies of environmental cognition. The descriptive first strategy identifies general patterns of interaction between variables and serves to generate hypotheses which can be tested by the adoption of the second strategy ... | But | quantification and power are not synonymous. The advantages of a quantitative approach to environmental cognition should not obscure the need for care in its use nor the need for an adequate, preexisting conceptual structure" (DOWNS and STEA, 1970, pp. 7 - 8).

DOWNS and STEA (1970) point out that "current ad hoc posture towards methodological questions is acceptable and even necessary in the exploratory stage of any research effort. However, it also runs the risk of producing incompatible results and delaying the development of cumulative scientific knowledge. There are disciplinary orientations in our approaches to research design, with geographers tending to favor the search for relationship via variance compounding (i.e. correlational methods), while psychologists favor variance splitting via analysis of variance methods. Linked with the previous observation is the problem of control and inference " and continue that "we are faced with four sets of variables ... yet we lack the research design capability to cope with this type of complexity".





## 2.6. Concepts and definitions

With the following definitions and explanations of descriptive categories, the danger of misunderstanding abstract concepts in our vocabulary should be reduced.

Although the hereafter newly introduced concepts are defined subsequently, this chapter contains detailed, often comparing, definitions and explanations.

- 1    **Appraisal**                      Whereas environmental perception is carried out by everyman, appraisal is the domain of the expert. There is a more fundamental difference between the cognitive activity of those who will appraise the environment for the purpose of creating itineraries or writing environmental impact statements and those, in their encounters with the environment, will go through with the decisions made by the experts.
- 2    **Assessment**                    Appraisal seems more concerned with evaluative dimensions, whereas assessment applies to other dimensions as well. One should also consider the distinction between environmental perception and assessment.(cf. p. 2)
- 3    **Associational reactions**        Associational reactions are defined as the response to what is seen through recognition of events that have occurred in the environment. These events may have been personal to the observer or, to his knowledge, have been experienced by others.
- 4    **Attitudes**                        Attitudes are understood as "the view of the world". Thus, an attitude must have a behavioural component, or what CAMPBELL calls a "disposition to respond".  
  
An attitude has an affective, cognitive and behavioural component. It is the collection of feelings (affects) and beliefs (cognitions) which predispose an individual to react in a certain way to the object of these affects and cognitions.  
  
It is extremely important to remember that from the point of view of attitude measurement, an attitude has two important properties: direction and magnitude.  
  
The direction indicates feelings, beliefs and behavioural tendencies and is stated in terms of positive or negative, whereas magnitude indicates the "degree" of favorableness or unfavorableness of an attitude.  
  
There may not appear to be much difference between perceptions and attitudes. Both develop as a result of experience, and cognition plays a role in both of them. One of the major differences, however, between perceptions and attitudes is one of scope: Perceptions are more transitory than attitudes.

Thus, the distinction between perceptions and attitudes lies not only in the immediacy of the stimulus but also in the generality of the stimulus, i.e. the specific stimulus versus a class of stimuli.

5 Beliefs (cognitions) lie somewhere between attitudes and perceptions. When an individual has a series of beliefs about an environmental event or situation and has an affective reaction to that environment, then he has an attitude towards that aspect of the environment. Cognition is typically taken to refer to aspects of the thought process, i.e. this concept refers to all the processes by which the sensory input is transformed, reduced, elaborated, stored, recovered, and used.

Such terms as sensation, perception, imagery, retention, recall, problem-solving and thinking, among many others, refer to hypothetical stages or aspects of cognition.

In environmental-perception studies, terms like cognitive maps, cognitive spatial representation, cognitive spatial responses, mental map and spatial schema are often used as more specific substitutes for the general terms belief and cognition.

LEE (1969, p. 12) has defined the concept in terms as:

"an inner representation of space that is originally built from the disposition of desired objects, but which later becomes an abstraction, a series of metaconcepts which organize the objects, facilitate navigation and allow us to coordinate our behaviour with that of others. They have been described as spatial schemata. They are obviously constructed from past sensations, myriads of "wherenesses" which have become organized into a structure in the form of an image that is, something that is available for examination when required. New perceptions from the external environment are given meaning by their connection to it".

## 6 Complementary factors

Complementary factors are defined as area-bound phenomena of the physical and social environment. They have a complementary influence on the tourist's general sense of well-being and appreciation towards his environment.

These factors are:

- (1) Scenic and diverse land- or townscape
- (2) Climatic conditions
- (3) Social and economic conditions
- (4) Security

## 7 Diversity

Diversity is an environmental quality that has to be considered. The definition of diversity is an expansion of the following definition of variety, in order to include the characteristics of an environment made up by sets of related elements belonging to a more universal taxonomy and showing fewer commonalities than in the case of variety.

"Diversity implies higher levels of differentiation than variety and may be applicable only to cases of analogy. For example, a row of residential ... buildings exhibiting minor architectural differences of detail is a case of variety within a common typology and homogenous use; but diversity should be applied to qualify the whole set of

different building types devoted to housing in a given area. It must be clear that the difference between variety and diversity is a matter of agreement, since both qualities are actually points along a continuum.

## 8 Environment

The environment is that which surrounds whatever is the object of attention at one time.

Qualitatively its principal divisions are:

- (1) the physical, both natural and man-built environments; and
- (2) the human, both individual (psychological) and collective (social) environments.

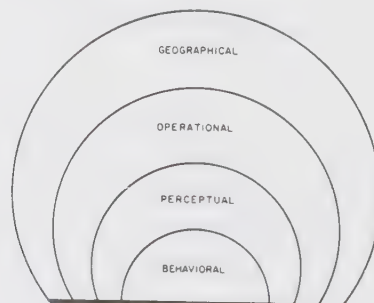
The communicative environment is a link, in that like all physical environments or containers - the media - communicate messages, whose totality is part of the human environment.

"All environments exist simultaneously and interact with their nuclear object, cybernetically and dynamically, over time. Also they are somewhat interchangeable qualitatively, in terms of their crucial interaction with man, at the cognitive level: a crowd can be perceived as a physical container and humans have bio-physical properties; and wilderness can be perceived as having primarily human significance.

Generally, however, what is perceived as a container and its means of impact - the signals ... - are primarily deemed physical, and the contents, the messages, are primarily human, at least when interpreted."

SONNENFELD presents slightly different principal divisions of the environment

Figure 38 Sonnenfeld's principal divisions of the environment



Source: Ward, 1972, p. 246.



In this instance it is to emphasize that taxa normally employed to characterise the real environment might have different relevance to the perceived environment.

- 9 Environmental-assessment studies      Observer descriptions of land- and townscape can be considered from two points of view:  
In environmental-assessment studies, the intent is to establish characteristics of places. Consensual observer descriptions are treated as trait designations and thus as properties of the land- or townscape.
- 10 Environmental-perception studies      In environmental-perception studies, the intent is to understand processes and factors influencing the responses of persons. Their descriptions are treated as trait attributions and thus as properties of the observer.
- 11 Environmental perception      Environmental perception is the perception either of the whole environment, or of specific selected elements within it, or even of "space" in the abstract: Essentially, environmental perception is a property of the mind rather than a construct of that mind.
- 12 EoA      Extent of agreement on the evaluation of different (simulated) parts of a townscape equals the number of selections, per photograph (simulation) and question, in percent of all potential selectors per question, i.e. the particular photograph is considered relevant by the test persons in x percent of all selection-procedures to correspond with their concept regarding the problem posed.  
Emphasis for selection is on the intrinsic visual and associational qualities of the photograph.
- 13 Geographical space perception      Geographical space perception is concerned with the image, the mental or cognitive space within an individual operates.
- 14 Image      LYNCH terms image "a generalised mental picture of the exterior physical world" (LYNCH, 1960, p. 4). "Imageable" therefore - where image is understood as a process of communication - is "that quality in a physical object which gives it a high probability of evoking a strong image in any given observer. It is that shape, colour or arrangement which facilitates the making of vividly-identified, powerfully structured, highly useful mental images in the environment." (LYNCH, 1960, p. 9).  
He emphasises the visual qualities of an object but omits the viewer's interpretation of symbolic or behavioural significance which may be

associated with that object (GULICK, 1963, p. 193).

The distinction between an image of the city and the visual perception of individual land- or townscape features is equivalent to the distinction between percept and concept (PIAGET and INHELDER, 1967, p. 17)

15 (Part of) a land-  
or townscape

(Part of a) land- or townscape is a portion of land which can be comprehended in a single view, especially in its pictorial and inter-related functional aspects.

16 Land- or town-  
scape resources

For the purpose of the study, Land- or townscape resources are observable entities and artifacts of the land-, respectively townscape (e.g. : water, trees, streets, buildings etc.), each of which can provide man with a range of utility values.

Visual-cultural characteristics are identified as a major townscape resource type termed visual-cultural townscape resources. They are defined as the results of several environmental - man-influenced and natural - activities normally present in the townscape, which have proven valuable to society (e.g. visual contrast or the presence of complementary factors).

They are intrinsic aspects of the physical environment whose values vary with the type and intensity of the uses of the town.

17 Orientation

Orientation can be defined as the awareness experienced by an observer, of his own location in a given environment, involving consciousness of relative direction and distance to specific orientator-landmarks, which determines his relative position in an understandable and highly predictive spatial organization.

Since the process of experiencing orientation is the result of a match between perceived visual clues and cognitive structures in the observer's memory, it is clear that it would increase with the personal experience of the environment.

This dynamic feedback between man and environment underlies some visual-psychological processes; in the analysis of "meaning", STEINITZ includes, "the knowledge latent in environmental forms and activities to which people are exposed" - in our words, the visual messages or inputs to be perceived; "the knowledge gained as people learn the characteristics of their environment" - that is, the assimilation and committing to memory of visual inputs, in a cognitive structure; and "the knowledge upon which are based the plans of action used by people to satisfy their various individual and social purposes" - that is, the match of perceived inputs within the frame of the cognitive structure, which permits the observer the orientation synthesis.

The issue of meaning and congruence between form and activity is related with the debate of whether buildings should "express" their use - STEINITZ indicates three levels of congruence:

- (1) - of type
- (2) - of intensity
- (3) - of significance of places.

## 18 Perceived environment

The perceived environment is taken to mean the whole monistic "surface" on which decision is based, including natural and non-natural, visible and non-visible, geographical, political, economic and sociological elements in terms of its scientific classification.

## 19 Perception

There appears to be much debate among psychologists about the possibility of defining perception. "Nowhere in the literature can we find in concise and adequate form a well-rounded account of what perception is, what its characteristics are, and/or how it relates to other aspects of behaviour (BARTLEY, 1958, p. 449).

One attempt at explanation states that perception has "something to do with our awareness of the objects or conditions about us. It is dependent to a large extent on the impressions these make on our senses. It is the way things look to us, or the way they sound, feel, taste or smell. But perception also involves, to some degree, an understanding awareness, a 'meaning' or 'recognition' of these objects ... We can include all the senses and can interpret perception as covering the awareness of complex environmental situations as well as single objects ... things can and do look differently from the way they 'are'; and when we realize this fact and begin to explore the reasons for it we shall have gained some light of the meaning of perception and the problem it presents" (ALLPORT, 1955, p. 14-15).

ALLPORT continues by summarizing the BRUNSWICK-AMES concept of perception as "the process of apprehending probable significances ... Basic to the processes is the fact that the organism has built up certain assumptions about the world in which it lives. These assumptions which are largely unconscious lead to ... the attaching of significances to cues."

So, discussions range from the physical aspects of perception like the physical properties of the stimulus such as hue, saturation and brightness, the receptor organs, the transmission of impulses from receptors to the brain, to discussions of inferences made when perceiving.

Perception can be seen as a function of four variables, namely:

- (1) - of the present stimulus input
- (2) - of receptor factors
- (3) - of motivation and the individual's state at the moment
- (4) - of past stimulation and previous experience with the stimulus of interest, or, briefly, habituation.

Numerous studies concluded that a person's manner of perceiving does not easily change and represents an ingrained feature of his psychological being - his perceptual style.

The term "perception" should be reserved for those instances in which there is an actual stimulus to be perceived as exemplified by the works of LYNCH and APPLEYARD. When dealing with a situation, a series of processes or collection of beliefs, it would be advisable to substitute "belief" or "cognition" for "perception".

Finally, it has to be added that the behavioural component of perception is unlike the behavioural component of attitude, due to the difference in the scope of the two concepts.

## 20 Spatial structure

The term spatial structure has been implicitly defined in a number of ways by geographers. For some, spatial structure is used as a shorthand description of the geometric concepts of interest in geography, such as pattern, distance, and morphology; while for others, spatial structure is used as a synonym for spatial arrangements or relative location. In all cases, however, spatial structure is viewed as an abstract or generalized description of the distribution of phenomena in geographic space.

## 21 System

A system is defined by a finite number of elements and similarly by the finite relationships between these elements.

The structure of  
a system

The total number of relationships between the elements of a system form the structure of the system.

The common relationships between all the elements of a system define the structural properties of the system. The relationships of one element to other elements define the structural properties of one definite element.

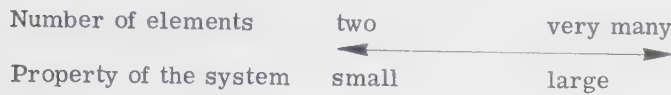
Systems are defined by the demand for at least one common structural property among all the elements. These structural properties constitute a system.



**Subsystem**                      A subsystem is defined by two or more elements of a system, which have more structural properties in common with one another than with all the others.

For the description of systems the following two concepts are of utmost importance:

- (1) The quantitative point of view is taken into consideration by the size of the system, defined by the number of elements of the system.



- (2) The qualitative point of view is taken into consideration by the homogeneity of the system defined by the similarity of the elements of the system.

**22 Utility preferences**                      Utility preferences are defined as the response to what is seen through recognition of existing or potential use of objects for a functional purpose or activity: "I like it because I will be able to do something there or do something with it."

**23 Variety**                      The term variety is used as a shorthand for a set of environmental qualities, all of which correspond to a higher (more complex) order, that defies full understanding in anticipation of the complete experience of the environmental sequence.

Variety can be defined as the characteristic of an environment made up by sets of similar but not equal elements, which belong to a common and recognizable taxonomy (typology) perceived by the observer in terms of the rhythmical differences appearing within the commonalities unifying the set.

This definition may be applicable to the cases of analogy (functional similarity) and homology (formal similarity).

It is not desirable to separate the functional and formal aspects of the environment; however, there may be cases in which incongruence between the characteristics of the physical form and of the activities may appear.

## PART 3. THE APPLIED PERSPECTIVE: METHODOLOGICAL PROCEDURE

### 3.1. Disposition and objectives

The main purpose of this paper is mentioned in a general sense in the introductory chapters. The objective of this chapter is to give an overview of all the procedures which took place from the starting point up till the final presentation of the results.

The problem to solve is to develop methods and procedures which could enable that presently unquantified environmental amenities and values may be given appropriate consideration in decision-making by public and private tourist organizations and tour operators, along with economic and technical considerations.

In any decision process, there are five stages where formal research may make substantial contributions to improve the probable accuracy of the conclusions. Research studies can be classified into four types relative to such contributions (cf. LUCK, WALES, TAYLOR, 1974, p. 26):

- (1) Preliminary research
- (2) Exploratory study
- (3) Conclusive research
- (4) Performance monitoring research

The four types of research distinguished by LUCK et al. (1974) tend to be quite different from one another. "It is of the utmost importance for the researcher to be certain about the phase or phases in a major decision in which his findings are to be used so that he can select an appropriate research design" (LUCK, et al., 1974, p. 25).

The present study has to be classified into the type of exploratory research.

The exploratory research type has three purposes that are interrelated:

- (1) to discover and define problems,
- (2) to describe by means of data assembling and ordering the relevant situation,
- (3) to attempt to contribute to a causal analysis.

It seems that there is no lack of willingness to discuss the problems associated neither with tourism nor with assessment. Their description, after a comparatively late start, has certainly not been neglected. Only their causal analysis remains a promise rather than an achievement.

If an exploratory study is aimed mainly at crystallizing the problem, it is diagnostic and stresses depth, whereas determination of the environment stresses breadth.

This paper is taken primarily to be an applied case study, and secondly to be underlying or basic research that does not focus on a particular situation, environment and decision.

The first objective of this project is to assess the degree to which a consensus image of their vacation environment existed amongst a group of package tourists and to examine the structure of this image.

A second objective is to look at the covariation between image structure and attributes of the townscape. The study thus falls into two of DOWN's and STEA's (1970) categories of image research, in that it is concerned with both the nature of the image, and the covariance of the image with other features.

The question is: What factors do people consider important about their environment? Focus is on the problem of the relationships of the image to the real world.

Problems of selection and interpretation are inevitable under such circumstances.

The aim is:

- (1) to investigate the extent of agreement between subjects on the evaluation of different parts of a townscape, i.e. the developed schemata (cf. chap. 3.2. ), by using both field experience and photographic representations for eliciting evaluative and descriptive responses to specific townscape settings.
- (2) to identify townscape dimensions hypothesized to be determinants of scenic resource values and which can be measured by using sources of functional data and photography.

We use landform and land use (in a townscape) as assessment variables and assume their qualitative influence on scenic quality and assessment responses.

To identify other relevant variables or townscape dimensions, develop measurement scales, and gain an understanding of the nature of the multivariant interactions are essential for explanation of responses to "real-world" scenic resources and for development of predictive capabilities.

- (3) to analyze, for a given set of parts of urban landscapes, the relationships between subjects' evaluative responses and the quantified dimensions.

Spatial behaviour is taken as a function of the image, where the image represents man's link with his environment.

Attempt is made to explain the perceived and assessed environment in terms of the sources of information on which it is based.

It has to be taken into consideration that, for reasons described in chapter 3.2, by "image" we mean a static mental picture and we are aware of the demand to transform the concept of image from a static mental picture of a relatively immutable physical environment to a "flexible instrument of human communication".

### 3.2. The strategy of investigation

What we need is (1) a technique for collecting data, and (2) a set of rules for using the data. We therefore have to:

- (1) choose the group of observers to be studied
- (2) decide in what manner the environment is to be presented
- (3) choose the technique for measuring
- (4) determine the standards by which the subjects' comprehension in general can be validated.

The terms of situation always allow the deduction of various possibilities of solution.

The prerequisite of any solution is herewith the transformation of the basic concepts into research operations, i.e. operationalizing (observable events are precisely described by operational definitions).

Nowadays, the range of measurement techniques is such that each individual researcher can use a standard technique and need not develop his own. Geographers lack the accumulated wisdom of other social scientists familiar with the problems of the measurement of subjective data. Consequently their ability to assess the power of a measurement technique, its effectiveness its range of applicability, and its reliability is limited. In particular, they must borrow concepts, theories and techniques wherever they seem applicable. To a great extent, the instruments that have been developed to measure specific psychological attributes are based on such selfreporting devices as interviews or questionnaires, and these are susceptible to an extensive range of biases.

The pristine difficulty of all science, particularly when man himself is both observer and observed, is expressed by HEISENBERG's law of uncertainty. This introduces a further difficulty: the inevitable infiltration in the results of a study, by instrumental and normative values.

The problem of biases is fundamental, particularly since we do wish to make inferences and predictions on the basis of the measurements.

Although the range of "non-reactive" measurement techniques is very limited, we should at least be aware of the problems involved in the use of reactive measuring devices.

"So long as one has only a single class of data collection, and that class is the questionnaire or interview, one has inadequate knowledge of the rival hypotheses grouped under the term "reactive measurement effects". (DOWNS, 1970. p. 94)

Quantifying approaches demand a reduction of complexity to simple parameters, usually substituting constants for environment, real or perceived, in the equation or, in the so-called landscape-assessment approach, for personality.

One solution to the problem of explication is by the measurement procedure:

"Often, the problem of establishing a rule of correspondence for relating a construct to observable data reduces to the problem of devising rules for the measurement of the constructs ...

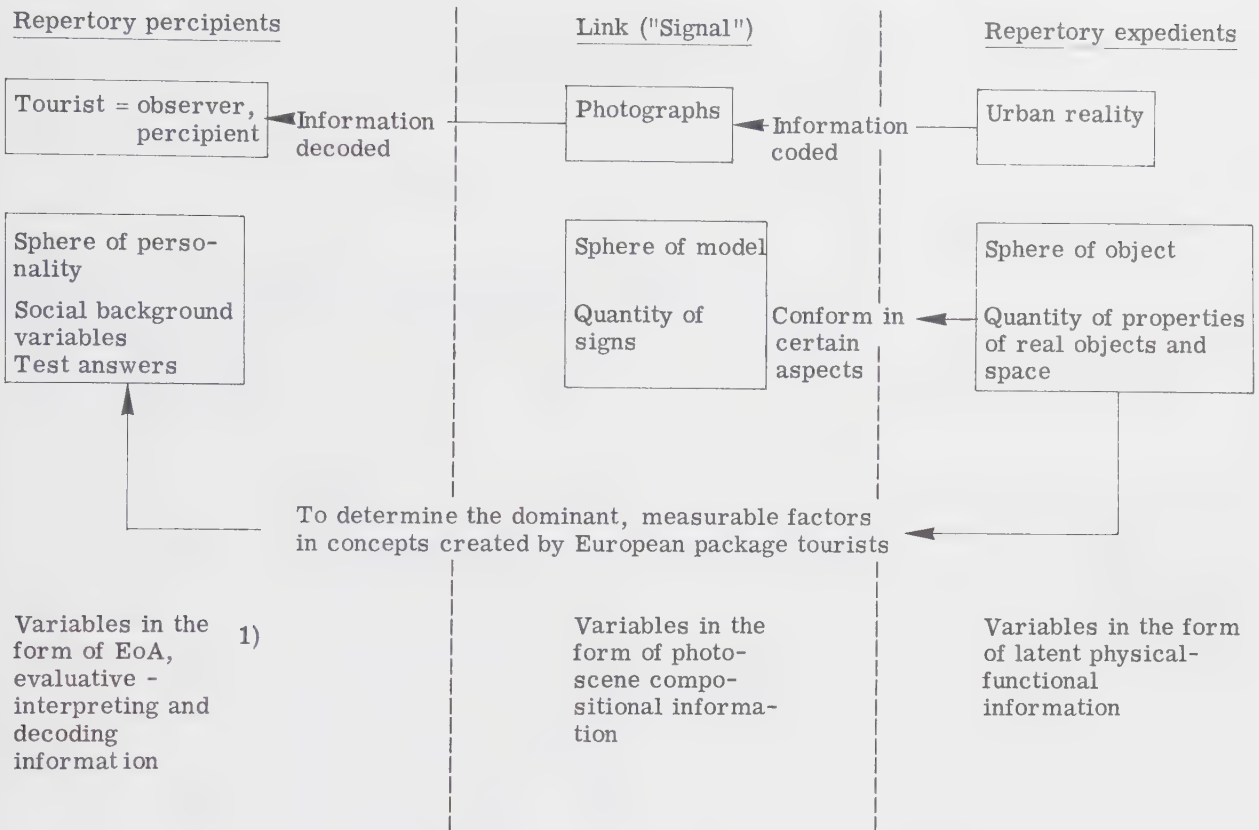
... a procedure of measurement not only determines an amount, but also fixes what it is an amount of " (DOWNS, 1970, p. 94).

Measurement procedures are defined by fiat: the observer develops a measurement technique to provide the data for testing particular hypotheses, i.e. "purposive measurement".



FIGURE 39

Scheme underlying the strategy of investigation



1) EoA = Extent of agreement on the evaluation of different (simulated) parts of a townscape, for more detailed definition, see p. 77.

According to the preceding statements, the relevant variables are covered in four groups:

- Sphere I : Photo-scene compositional variables
- Sphere II : Physical-functional (visual-cultural) variables
- Sphere III : Extents of Agreement on the evaluation of (simulated) parts of the townscape
- Sphere IV : Personal and socio-economic (including touristic) background variables

The intra- and interrelationships can, on principle, be investigated in two ways. Guideline for the present paper was the system analysis research strategy, whereby the particular situation concerning data collection and the subsequently amenable results partly made necessary a kind of system identification research strategy.

This is true for the analysis of the interactions between the sets of variables of the Spheres III and IV. (compare p. 117).

To quantify the raw data and the subsequent treatment thereof the two following statistical methods of analysis are possible:

- (1) Factor analysis, i.e. principal components analysis with varimax rotation
- (2) Multiple regression analysis.

In the following figure, the meaningful and not meaningful possibilities of these two methods of analysis are presented with especial consideration of the approaches made in this study:

FIGURE 40

Procedures in landscape-assessment studies

|                                                                                                                                                                       |                                                   | Criteria                                          | Dependent variable(s)                             |                                                |                                       |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|---------------------------------------------------|---------------------------------------------------|------------------------------------------------|---------------------------------------|--|
|                                                                                                                                                                       |                                                   | Sphere I<br>Photo-compo-<br>sitional<br>variables | Sphere II<br>Physical-<br>functional<br>variables | Sphere III<br>Extents of<br>Agreement<br>(EoA) | Sphere IV<br>Personality<br>variables |  |
| <b>Predictors</b><br><b>Independent variables, (factor variables)</b><br><br>Their effects on criteria variables are to be examined by means of analysis of variance. | Sphere I<br>Photo-compo-<br>sitional<br>variables | FA                                                | mra                                               | MRA                                            | mra                                   |  |
|                                                                                                                                                                       | Sphere II<br>Physical-<br>functional<br>variables | MRA                                               | FA                                                | MRA                                            | mra                                   |  |
|                                                                                                                                                                       | Sphere III<br>Extents of<br>Agreement<br>(EoA)    | mra                                               | mra                                               | FA                                             | mra                                   |  |
|                                                                                                                                                                       | Sphere IV<br>Personality<br>variables             | mra                                               | mra                                               | MRA                                            | FA                                    |  |

|                |     |   |                                     |                                         |
|----------------|-----|---|-------------------------------------|-----------------------------------------|
| <b>Legend:</b> | FA  | : | Factor Analysis                     | (meaningful procedure, effectuated)     |
|                | FA  | : | Factor Analysis                     | (meaningful procedure, not effectuated) |
|                | MRA | : | Multiple Regression Analysis        | (meaningful procedure, effectuated)     |
|                | MRA | : | Multiple Regression Analysis        | (meaningful procedure, not effectuated) |
|                | mra | : | Multiple Regression Analysis        | (not meaningful procedure)              |
|                |     | : | Meaningful approach for geographers |                                         |

The main intent of the present paper is to explain the EoA - in brief the image - with the help of these work hypotheses. This is done by comparing information (cf. research-strategies) assisted by statistical methods. As a result,

- (1) Comparative units must be defined,
- (2) Comparative data must be found, and
- (3) Adequate statistical methods must be put to use.

These three spheres of work and decision-making will be presented in the following section, whereby especially the role of statistics (3) will be stressed.

**Sphere I:** The units of investigation are called representative photographs. This name is given to 41 units which were chosen from 250 photographs which were taken according to the criteria described in chap. 3.322.

They serve to determine the efficacy of the use of photographs for the purpose of simulation for townscape assessment.

**Sphere II:** The units of investigation are called statistical units. These include 9 districts, 26 sub-districts, traffickedistricts and ad hoc areas of investigation.

The limits of these areas of reference are presented in Map 3.

The purpose is to investigate the adequacy of physical and functional dimensions (see variables 23-112) as predictors of assessment.

**Sphere III:** The units of investigation correspond to the photographs gathered under Sphere I. They are introduced into the analysis in Sphere III and related to other variables, the so-called EoA as an expression of intra-group agreement within a range of townscape-assessment questions.

**Sphere IV:** The units of investigation are called pleasure package tourists. For reasons of approach the related personality variables are not introduced in detail into the analysis.

We are interested solely in the extent of intra-group agreement within a range of landscape-assessment questions.

The following considerations form the basis of the strategy of investigation:

- (1) The complex data, "real world" and "link" variables, are broken down into a number of single dimensional measures which can characterize these two spheres.
- (2) The test persons select in answer to the questions (sphere III: variables 113 - 124), from the photographs (sphere I: variables 1 - 21) those which they consider to be relevant, i.e. the concept "image" is approached by the choice of several aspects. Chap. 3.32. and 3.33. explain the selectional aspects.

There is a maximum of 41 choices per question per test person. The answers are dichotomous:

- 1, Yes = selection
- 2, No = non-selection

- (3) Functional data which correspond to the surroundings of the photographic situation are projected into the photographs as so-called latent information (sphere II: variables 22 - 112).

It can be assumed firstly that the picture of the townscape which the package tourist takes with him (residual or right-after-the-fact opinions/ time: at the end of the stay, i.e. structural approach; cf. chap. 5.11. ), reflects objectively measurable characteristics of the townscape in the form of physical-functional data which are easily recognisable.

Secondly, it is assumed that the link-influence (characteristics of the photographs) dominates.

The attempt will be made to transmit quantitative information about the relative meaning of the aforementioned characteristics.

As a measure the EoA is used which indicates the number of selections per photograph and answer, and this in a percentage of the greatest number possible (corresponds to the number of test persons who have answered the question).

With the aid of the multiple regression analysis the investigation is made as to how the EoA (per question) can be deducted as a dependent variable from the independent variables (spheres I, II).

The assumptions, which are the basis of the results to be interpreted in part 5, must now be formulated.

We validate possibilities of the methods of investigation which - although physically restricted - were nevertheless able to be applied, and indicate directions for future investigations.

The main problem should, in this way, be brought a step closer to its solution whereby especially in the interpretation of the results achieved mechanically a reservation must be made due to the lack of a general basic theory.

For this reason, all results of the research which are related to the relevance of theoretical dimensions and spheres of investigation must be considered as preliminary results only. Great importance is given to theoretical questions in all stages of this paper. Although the attempt was made to gather previously developed insights in a separate part, references to theoretical questions are to be found in all sections of the paper.

The methodology outlined above has been applied to the assessment of townscape parts' similarity among the districts of Bangkok presented by a group of 211 tourists. 41 photographs<sup>1)</sup> were presented to each tourist who was instructed to select the pictures which he interpreted to refer to the focal concept of any particular question. Tourists were given twenty minutes to perform this task. The resultant choices were then taken off the schedules and inserted in a Cij matrix. The cell entries were converted into proportions of row totals. (further processing see Part 4).

---

1) "As geographers, we are likely to project on to the |tourists'| perceptions geographical differences which we think are important, but which from the layman's viewpoint are insignificant, esoteric, or both. What is probably required here is an informal interview tool . . ." (COX and ZANNARAS, 1973, p. 178).



At the beginning of the evaluation are the two large R-matrices.

They are reduced to 3 and 9 leading variables respectively according to the standpoint of their statistical significance (sphere I, with 3 classes of significance) and to the theoretical relevance of the different variables while applying the principal components analysis.

The decision as to which variables or dimensions reflect best the inherent structure of the correlation matrix is mechanically made.

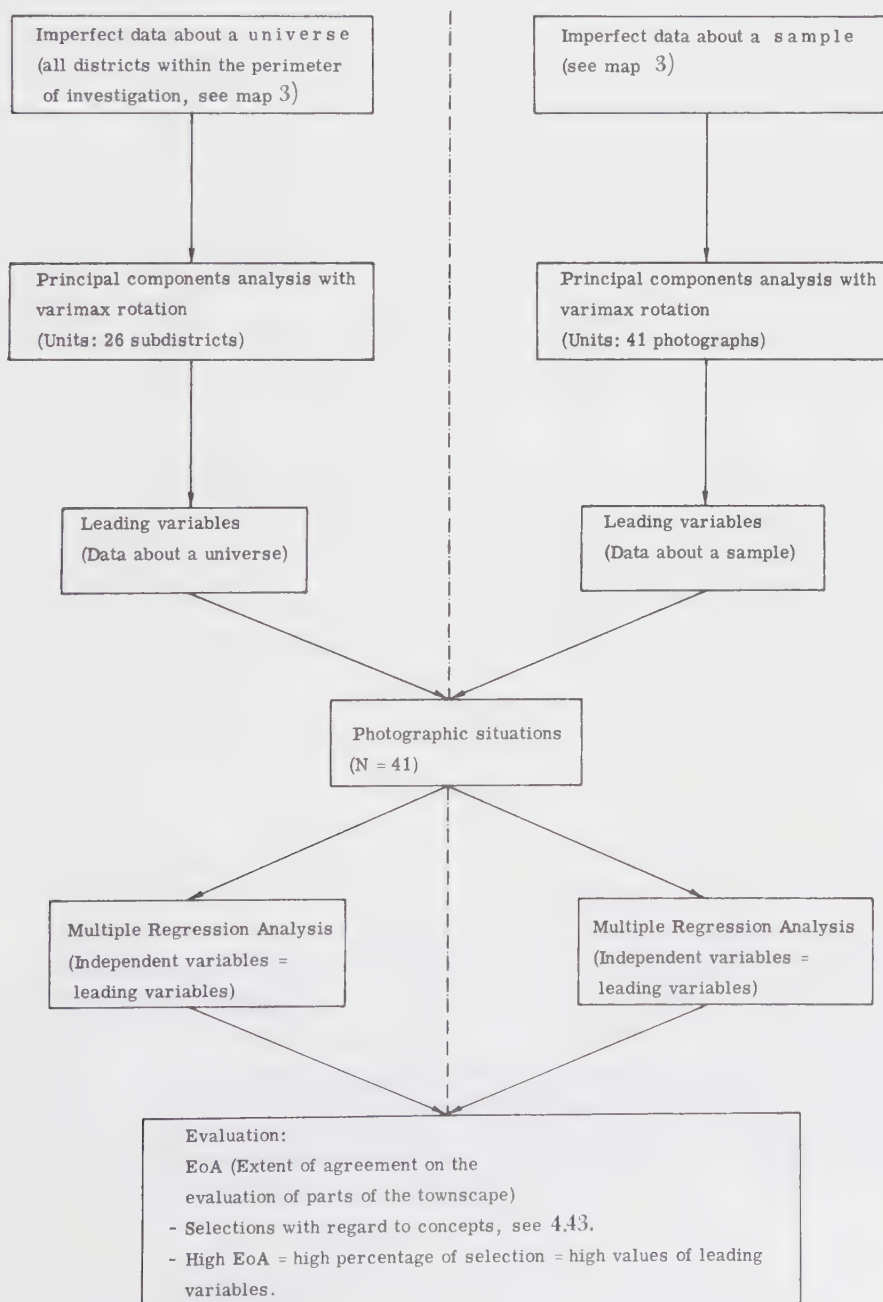
These can be used as leading variables for the following multiple regression analyses.

The theoretical interpretation does not precede the process of choice but follows it.

The following scheme fixes the succession of steps to be taken.

It is obvious that the evaluation is based on statistical methods. The following chapters are dedicated to the purely statistical aspects of this procedure.

FIGURE 41 The succession of steps



### 3.3. Test materials, media of presentation, and experimental procedures

#### 3.31. Introduction

The main problems of the verbal approach are as follows:

- (1) The concepts which are used in the actual testing must be defined by the tourists themselves:
  - These must be few, but important
  - The span of their meaning to the tourists must be checked
- (2) The medium of language may describe phenomena insufficiently
- (3) Details are necessary about the kind of organization and about the kind of meaning of relevant phenomena, i.e. of their concepts
- (4) Content is only different when the language used has various means of formulating it
- (5) The semantic models of the persons tested and the capacity of differentiation in respect to certain criteria must first be determined and investigated.

#### 3.32. The photographs as surrogates

##### 3.321. Introduction

The essential point here is to remember that the application of photographs is one of the most important ways which they themselves employ to transmit their ideas about the vacation environment to other persons, i.e. the most important medium besides the spoken word in word-of-mouth transmission.

Therefore we hold this an appropriate technique and very important in attempting to assess experiences which people can rarely express with any degree of eloquence.

A large array of townscape photographs was used in the appraisal of observer agreement. Coloured photographic coverage was systematically obtained so as to document the range of townscape settings found within the entire study area (cf. map 3, p. 92).

Forty-one views were selected as representative of the range of identified townscape settings. The test environments were not chosen as quintessentially of Bangkok, as a whole, but rather as representative for Bangkok Metropolis.

##### 3.322. The technical criteria

The locations of the photographs were chosen as follows:

- the multi-stage area sampling method yielded 159 sample areas (see map 3, p. 92)
- each area was delimited by main- or local streets with connections to other streets on both of the ends
- for each of the sample areas, three positions on these framing streets were determined at random
- from the exact location of the photographer's standpoint, the photographs were taken in such a way that at least an object of the size of a building was represented completely
- all pictures were taken in man-height, the horizon lying between H 1 and O 2 (see Fig. 43, p. 95), with a normal objective (f = 55 mm) on Kodacolor II film and developed to the size 7.9 x 11.7 cm.
- Black and white copies in original size are to be found on pages 99 - 105.

TABLE 23 Correspondence between photographs and districts, subdistricts and traffic districts

| District                | Subdistrict             | Traffic-District | Photograph |
|-------------------------|-------------------------|------------------|------------|
| Phra Nakhon             | Phrabarom maha rajawong | 1                | 1          |
|                         |                         |                  | 2          |
| Pom Prap Sattru<br>Phai | Rajbopit                | 2                | 3          |
|                         | Wat Bovornivet          | 2                | 4          |
|                         | Banbart                 | 3                | 6          |
| Samphantawong           |                         | 3                | 7          |
|                         | Somanat                 | 3                | 5          |
|                         | Talad noy               | 4                | 9          |
| Bang Rak                | Chakrawad               | 4                | 8          |
|                         | Silom                   | 14               | 20         |
|                         | Suriwong                | 14               | 16         |
| Pathum Wan              | Silom                   | 14               | 17         |
|                         | Silom                   | 14/13            | 18         |
|                         | Silom                   | 14               | 10         |
|                         | Sipraya                 | 13               | 19         |
|                         | Maha phetaram           | 13               | 14         |
|                         | Lumpini                 | 12               | 25         |
|                         | Pathum Wan              | 11               | 22         |
|                         | Lumpini                 | 12               | 21         |
|                         | Lumpini                 | 12               | 24         |
|                         | Wang mai                | 10               | 13         |
|                         | Rong mueng              | 10/13            | 11         |
|                         | Rong mueng              | 10               | 15         |
| Dusit                   | Pathum Wan              | 11               | 23         |
|                         | Rong mueng              | 10               | 12         |
|                         | Dusit                   | 6                | 33         |
| Phaya Thai              | Suan Chitlada           | 6                | 34         |
|                         | Wachira Payaban         | 5                | 35         |
|                         | Samsen Noi              | 19               | 30         |
|                         | Thung phaya thai        | 8                | 26         |
|                         | Samsen Noi              | 19               | 32         |
|                         | Maggasan                | 8                | 31         |
| Phra Khanong            | Thung phaya thai        | 8                | 27         |
|                         | Thanon Phaya thai       | 7                | 29         |
|                         | Thanon Phaya thai       | 7                | 28         |
|                         | Phra Khanong            | 24               | 39         |
|                         | Phra Khanong            | 24               | 40         |
|                         | Klong Ton               | 23               | 37         |
| Bangkok Yai             | Klong Toey              | 22               | 36         |
|                         | Klong Ton               | 23               | 38         |
|                         | Wat aroon               | 53               | 41         |

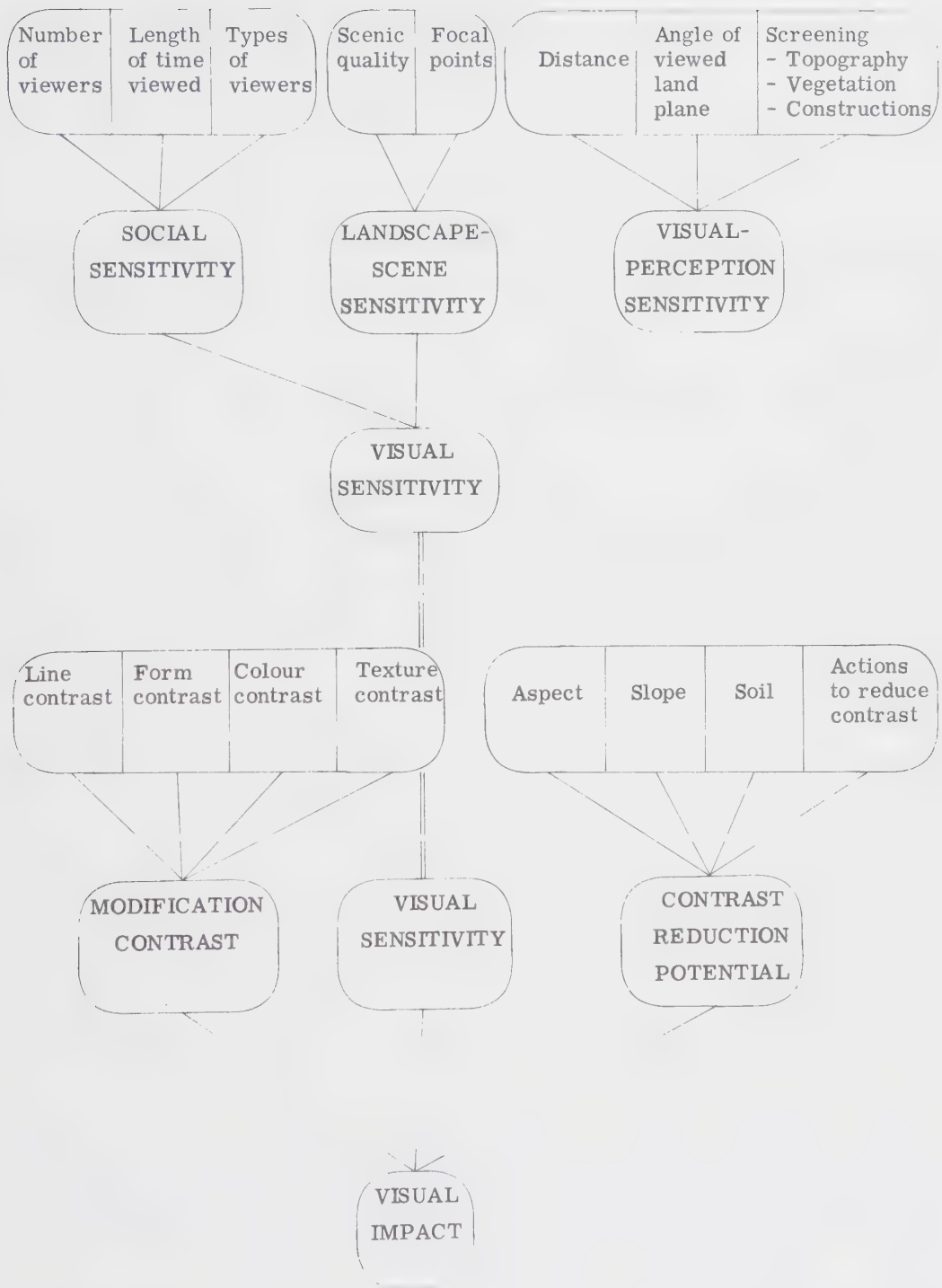
Districts, subdistricts and traffic districts within the area of investigation  
(1975)

Multi stage area sampling: the sampled areas





FIGURE 42 Visual sensitivity and visual impact, a scheme for the quantification of assessment



Source: IVERSON, 1975, p. 281.

### 3.323. The photo-scene compositional variables

The procedure for evaluating the quality of a townscape scene within the various townscape types is accomplished through the following stages:

- (1) Selection of site variables and townscape scene types.
- (2) Determination of the townscape scene's visual field.
- (3) Development of a proportional frame for photo-scene analysis.
- (4) Establishment of measurement components for townscape photo-scene analysis.
- (5) A ranking system for the proportional frame's division lines and junctions.
- (6) Formulas for determining the photo-scene compositional value.

The arrangement of the following site variables will determine the value assigned to the townscape scene within the townscape type:

- (1) Sky
- (2) Open spaces
- (3) Water
- (4) Housing
- (5) Streets
- (6) Traffic (vehicles)
- (7) Utilities
- (8) Vegetation
- (9) Signs (traffic signs, advertising space, billboards)
- (10) Monuments, bridges, walls
- (11) Persons

The establishment of the key combinations of the 11 site variables is accomplished by reducing the scene to three basic zones that can provide a framework common to all townscape types. The three zones and their perceptual characteristics are as follows:

- (1) Foreground: the recognition of townscape details such as individual building components, leaves, aeriels, and so on.
- (2) Middleground: the recognition of structure outlines, area limits of open space, water bodies, and so on.
- (3) Background: the recognition of structure and vegetation masses and absence of characteristics such as colour, texture, and form.

The 4 mm - grid used to measure the variables chosen (cf. appendix 7) is not printed on the photographs for reasons of legibility. However, the delimitations printed in black refer to the 11 site variables, whereas the white lines delimit the three basic zones foreground, middleground and background.

The map(s) printed between the photographs make(s) the exact location of each picture possible (compare also map 3, p. 92).

The photographs have no obligation to beauty. They have no unique aesthetic effect on the observer. The observer should approach the realities represented in the pictures with critical analysis as well as with an eye for beauty. The kind and combination of questions asked show to what extent the content of the pictures is abstracted, idealized and chosen in order to answer the questions, i.e. what factors are considered to be important as clarification of the answer.

The main problem of an exact scientific aesthetics lies in the determination and definition of the aspects of the material aesthetic object since they define exactly that with which aesthetics are concerned.

One must understand clearly what one wants to formulate as knowledge. Whereupon the formal scientific problem enters, namely: What is important in aesthetic situations?

"The typical aesthetic experience may be regarded as compounded of three successive phases: (1) a preliminary effort of attention, which is necessary for the act of perception, and which increases in proportion to what we shall call the complexity (c) of the object, (2) the feeling of value or aesthetic measure (M) which rewards this effort, and finally (3) a realization that the object is characterized by a certain harmony, symmetry, or order (O), more or less concealed, which seems necessary to the aesthetic effect. This analysis of the aesthetic experience suggests that the aesthetic feelings arise primarily because of an unusual degree of harmonious interrelation within the object. More definitely, if we regard M, O, and C as measurable variables, we are led to write

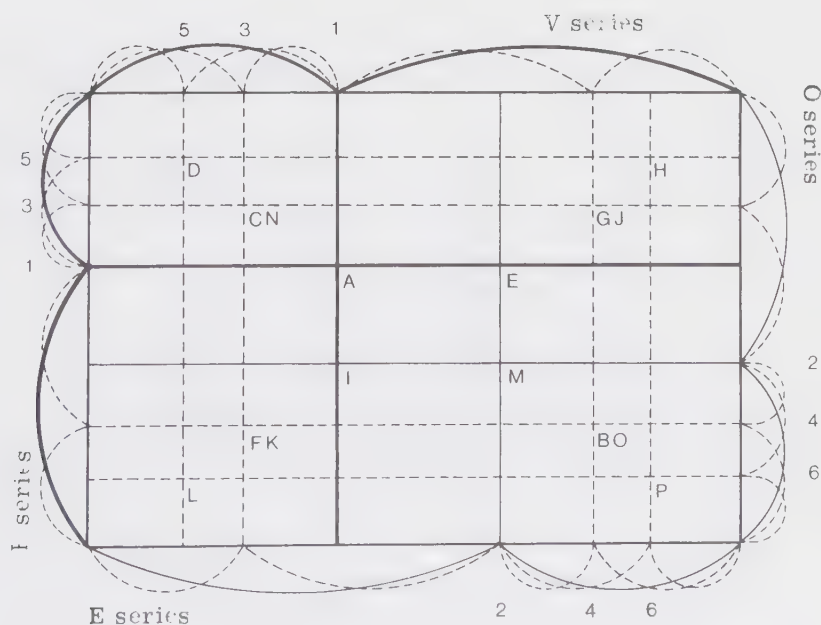
$$M = \frac{O}{C}$$

and thus to embody in a basic formula the conjecture that the aesthetic measure is determined by the density of order relations in the aesthetic object." (BIRKHOFF, 1933, p. 3 ff.)

The landscape scene is analyzed with a proportional frame that has 12 basic orders of division. A more complex breakdown with a larger number of orders was not used because of the nature of viewing the townscape. The observer is reacting to a scene within a limited timespace reference that prevents a detailed visual inspection of small parts within a scene composition. For this reason we do not use the theories concerning numeric aesthetics as developed by BIRKHOFF (1933) and MASER (1971).

FIGURE 43:

The proportional frame for photo-scene compositional analysis



The orders are all function of the golden-mean ratio, and the system equally considers the horizontal and vertical division series (see Figure 43). The scene is evaluated from either the H or O series and from either the V and E series and from any combination, but always limited to two series. The determination of what series to use is based on the relation of the scene's compositional lines to either H1 or O2 and to either V1 or E2.

The landscape scene is evaluated with the proportional frame in accordance to the degree of similarity between the scene's compositional lines and the proportional division lines of the photo-scene frame. Also, the point of intersection for the horizontal and vertical lines is a point of high visual interest because it relates strongly to both directional lines. The location of a landscape feature, such as a structure, vegetation, or water-body edge, at such a junction will provide a view with a high visual interest. The junctions have a different value because the division lines are of different order. Thus, a hierarchy of junctions or focal points within the composition is established (see Figure 43). The landscape scene is therefore evaluated according to the compatibility of the three proportional frame components within the photo scene: horizontal composition-division lines; vertical composition-division lines; junctions of horizontal and vertical lines.

Each landscape scene will have minimum of 3 points assigned because the horizon line will either be near H1 or O2 division lines, which are the initial lines for evaluating all scenes. The maximum a landscape scene can score is 15 points: 6 for horizontal composition, 6 for vertical composition, and 3 for junction points. The junction points are not ranked as high as the division lines because they are similar to both line types; hence, there is an aspect of redundancy to this analysis component.

(For more elaborate description of "Micro Assessment" and "Micro-composition Analysis Method", see POLAKOWSKI, 1975)

TABLE 24 The photo-scene compositional values

| Photograph number (cf. pp. 99 - 105)        | Photo-scene compositional value |
|---------------------------------------------|---------------------------------|
| 4                                           | 13                              |
| 20                                          | 10                              |
| 33                                          | 9.5                             |
| 9, 12, 31, 40                               | 9                               |
| 16, 19, 34, 39                              | 8.5                             |
| 13, 26, 27, 35, 37, 41                      | 8                               |
| 28                                          | 7.5                             |
| 5, 6, 7, 15, 17, 24, 29, 38                 | 7                               |
| 22                                          | 5                               |
| 3, 23                                       | 4                               |
| 1, 2, 8, 10, 11, 14, 18, 21, 25, 30, 32, 36 | 3                               |



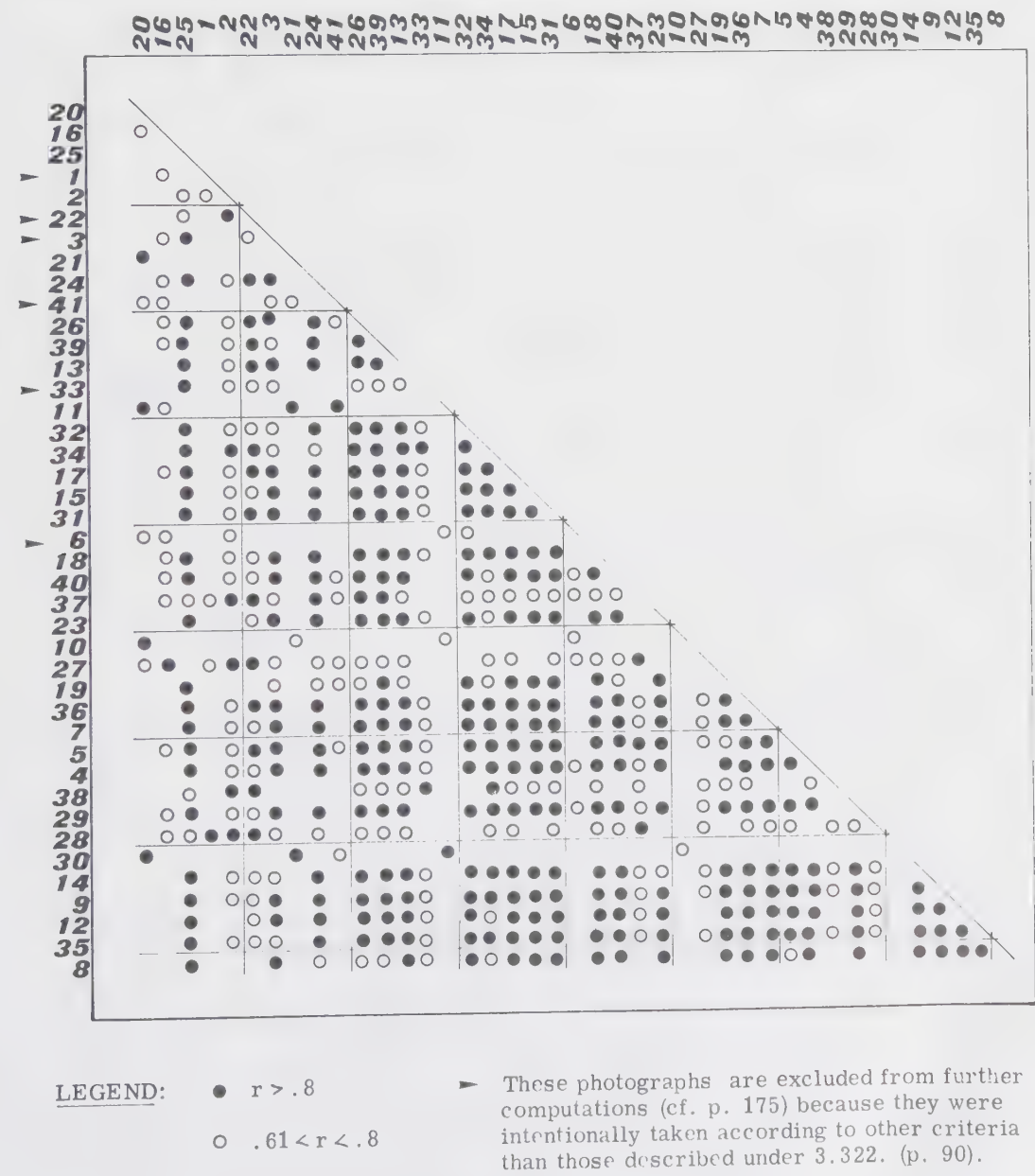
3.324. The photographs presented

Based on the 21 photo-scene compositional variables (see appendix 7), a Q-technique factor analysis was effectuated which yielded 5 factors accounting for .962 of the variance among all 41 photographs.

The following correlation matrix shows in ● close correlations ( $r > .8$ ) and medium correlations ○ ( $.61 < r < .8$ ). The photographs deviating are clearly recognizable on the basis of the pattern of the matrix:

→ In the following presentation of the photographs, their loadings on the five factors are indicated in order to make possible a grouping based on the variables chosen.

FIGURE 44 Q-mode correlation matrix: correlations between photographs



Correlations based on Pearson's r.

# LEGEND



Location and direction of photographs taken

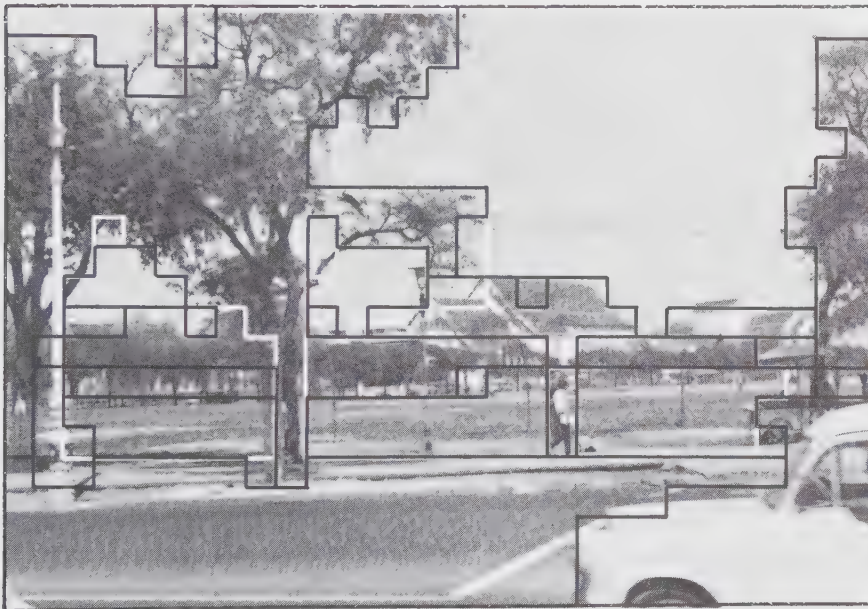
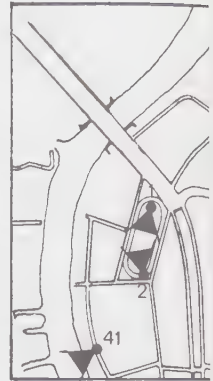
No. of photograph







|                  | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|------------------|----------|----------|----------|----------|----------|
| Photograph No. 1 | 0.21955  | 0.25650  | 0.80697  | -0.01112 | -0.04243 |



|                  | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|------------------|----------|----------|----------|----------|----------|
| Photograph No. 2 | 0.42514  | 0.15047  | 0.59153  | 0.50970  | 0.39001  |



|                  | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|------------------|----------|----------|----------|----------|----------|
| Photograph No. 3 | 0.84441  | 0.23738  | 0.30955  | 0.07597  | -0.23590 |





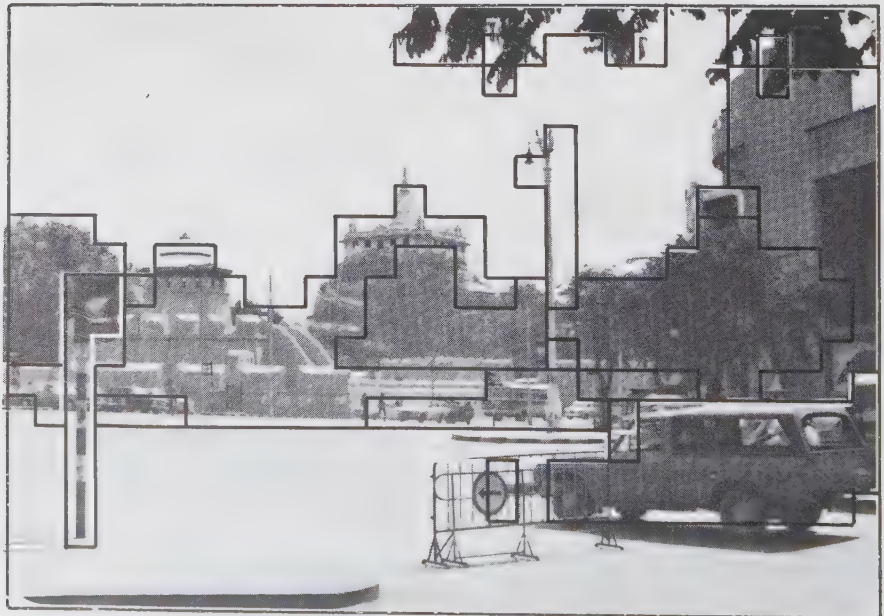
Photograph No. 4

| Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|----------|----------|----------|----------|----------|
| 0.93141  | 0.07130  | 0.14309  | 0.17725  | 0.25211  |



Photograph No. 5

| Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|----------|----------|----------|----------|----------|
| 0.82047  | 0.18765  | 0.49395  | 0.10836  | -0.00779 |



Photograph No. 6

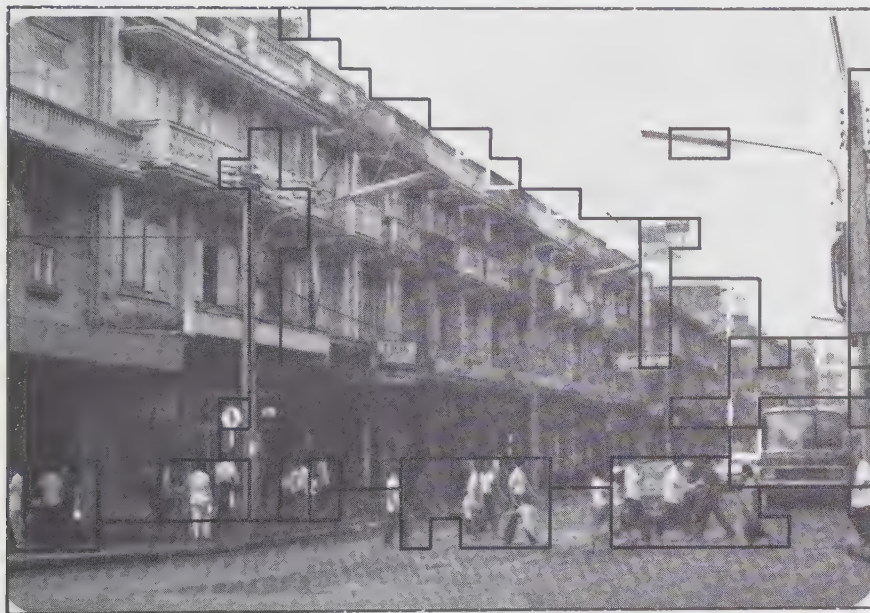
| Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|----------|----------|----------|----------|----------|
| 0.40112  | 0.53068  | 0.22594  | 0.11726  | 0.68137  |





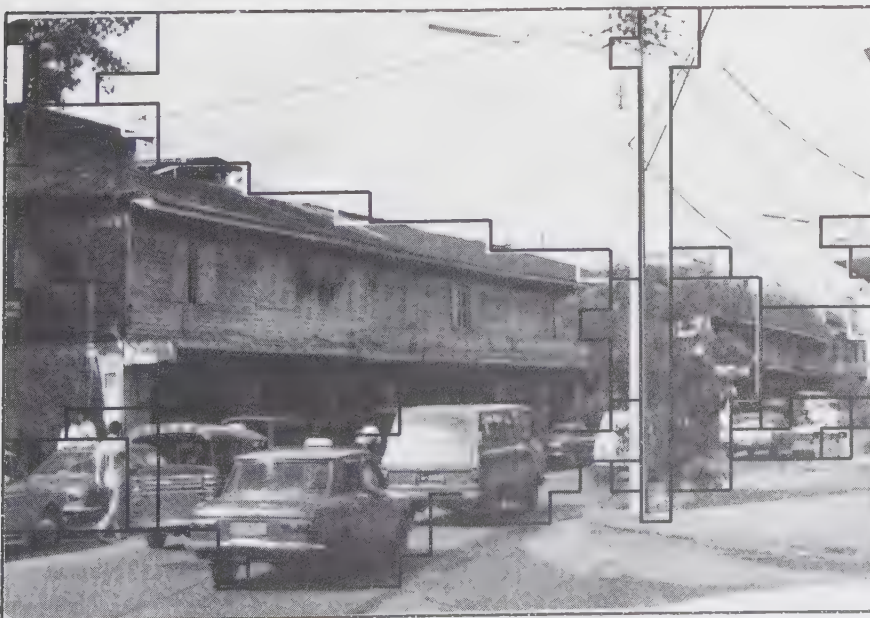
Photograph No. 7
 

| Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|----------|----------|----------|----------|----------|
| 0.92765  | 0.05914  | 0.30634  | 0.13008  | 0.00849  |



Photograph No. 8
 

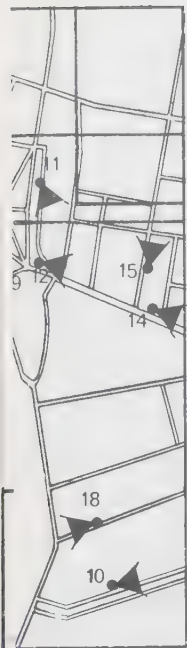
| Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|----------|----------|----------|----------|----------|
| 0.95970  | -0.05043 | -0.08144 | 0.16772  | -0.02039 |



Photograph No. 9
 

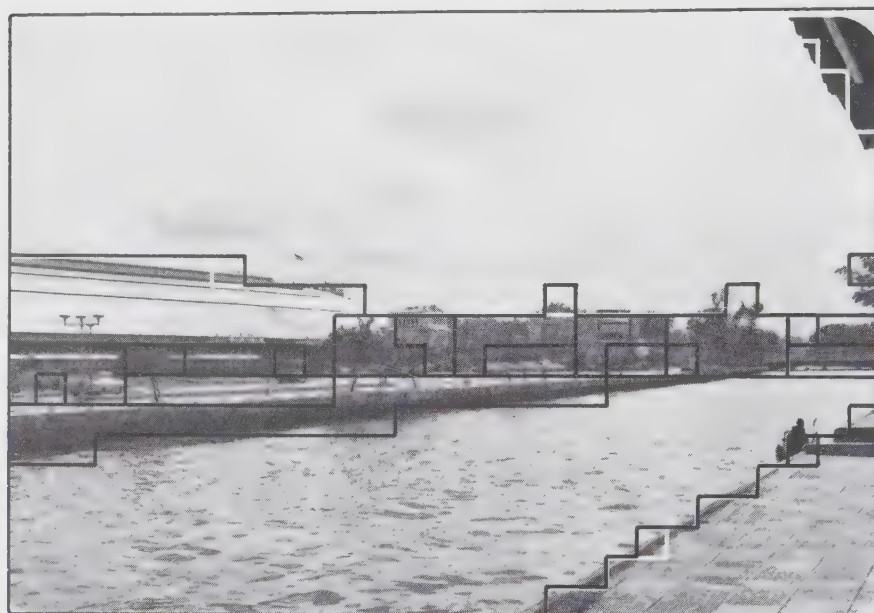
| Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|----------|----------|----------|----------|----------|
| 0.94252  | 0.05850  | 0.22330  | 0.19566  | 0.01780  |





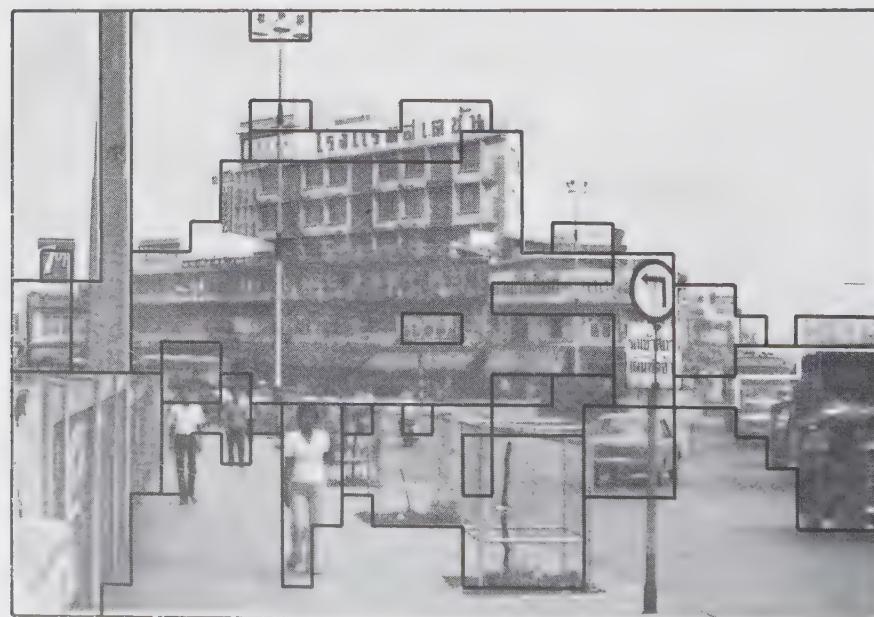
Photograph No. 10

| Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|----------|----------|----------|----------|----------|
| -0.04555 | 0.71959  | -0.04072 | 0.42345  | 0.52748  |



Photograph No. 11

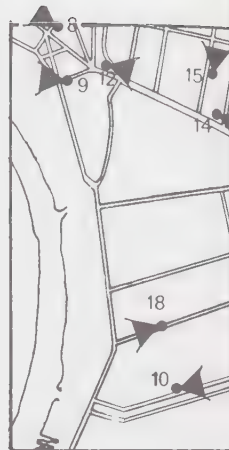
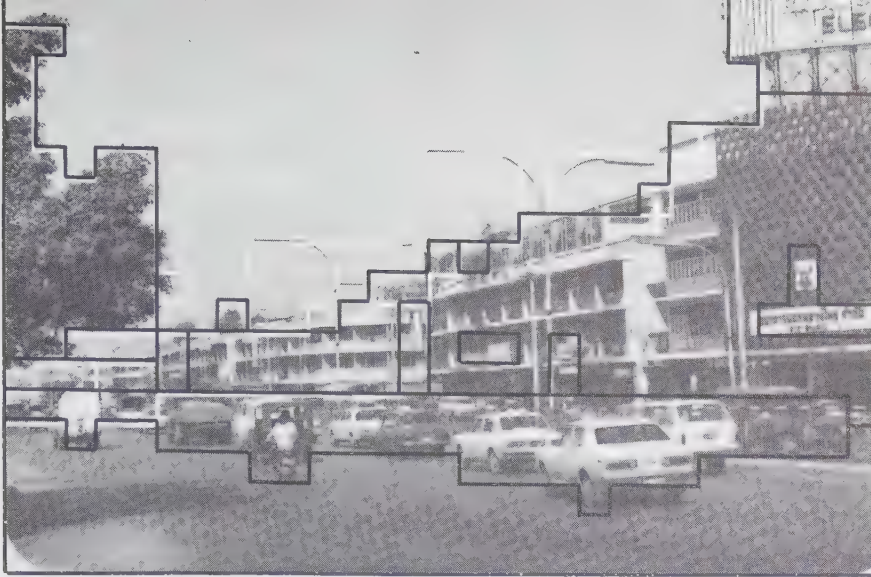
| Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|----------|----------|----------|----------|----------|
| 0.14158  | 0.94719  | 0.17239  | -0.15383 | 0.04040  |



Photograph No. 12

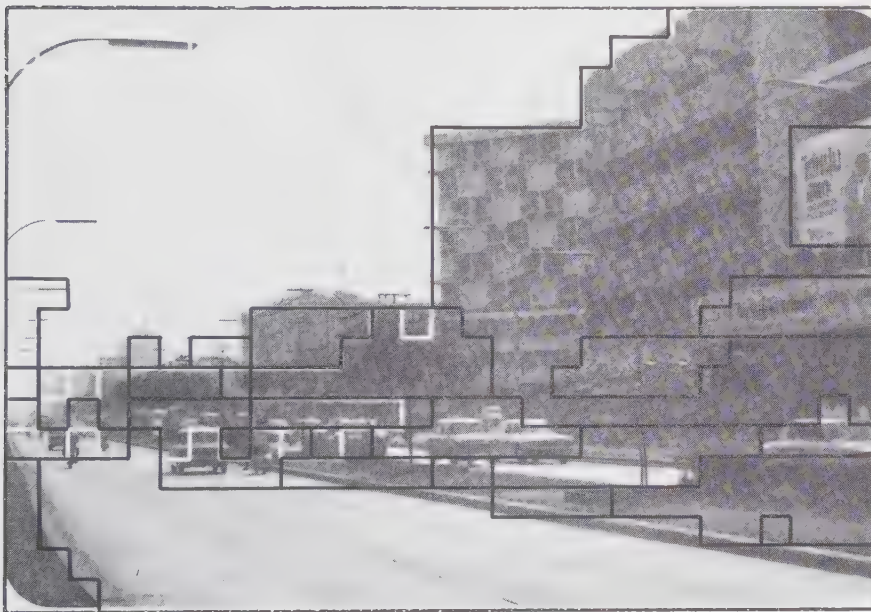
| Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|----------|----------|----------|----------|----------|
| 0.93361  | 0.05528  | 0.26108  | 0.12580  | -0.07531 |





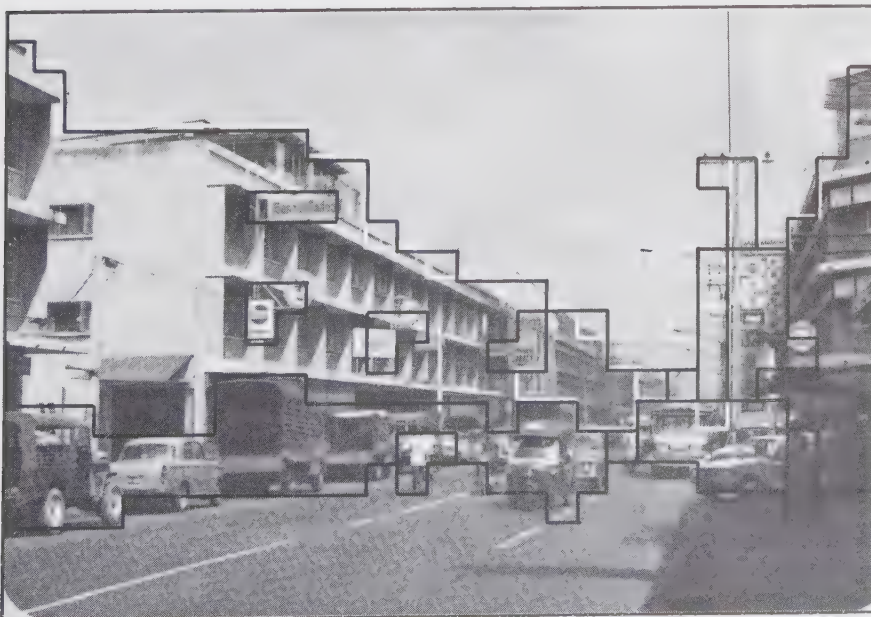
Photograph No. 13
 

| Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|----------|----------|----------|----------|----------|
| 0.89146  | 0.06144  | 0.36200  | 0.22408  | 0.08655  |



Photograph No. 14
 

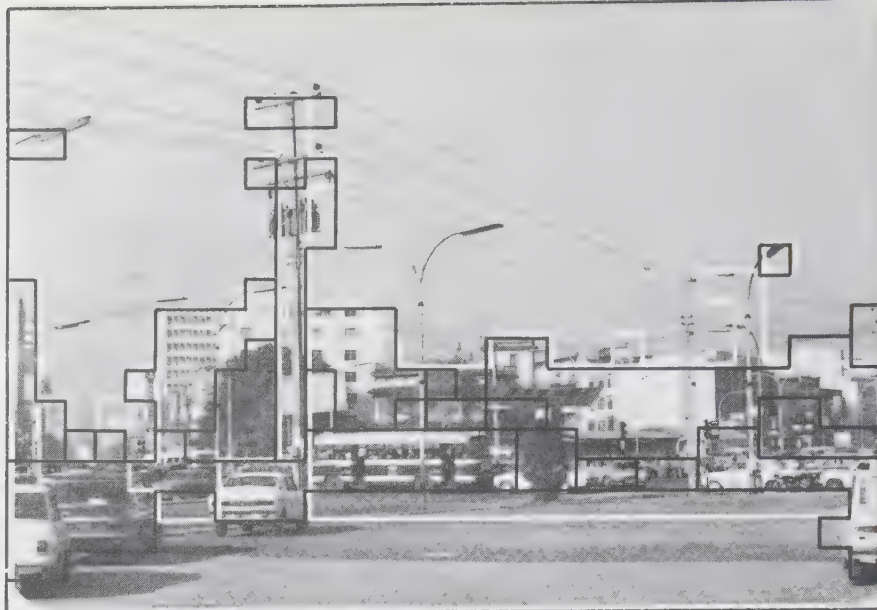
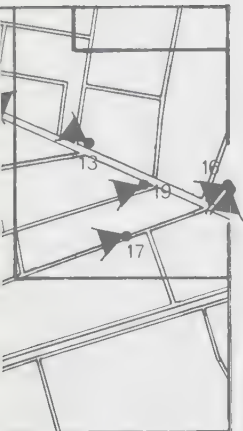
| Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|----------|----------|----------|----------|----------|
| 0.84415  | 0.11050  | 0.28478  | 0.26417  | 0.16873  |



Photograph No. 15
 

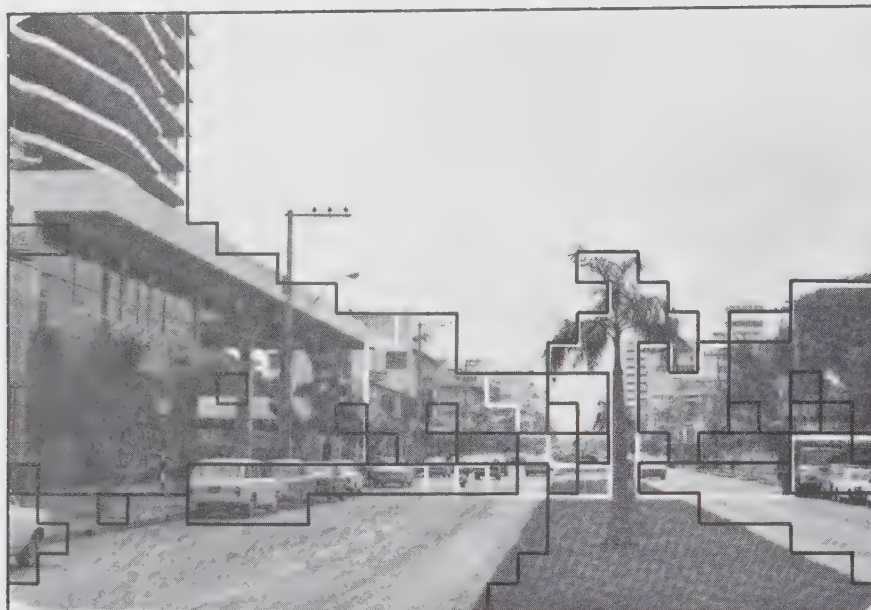
| Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|----------|----------|----------|----------|----------|
| 0.95677  | -0.02390 | 0.21828  | 0.16531  | 0.02341  |





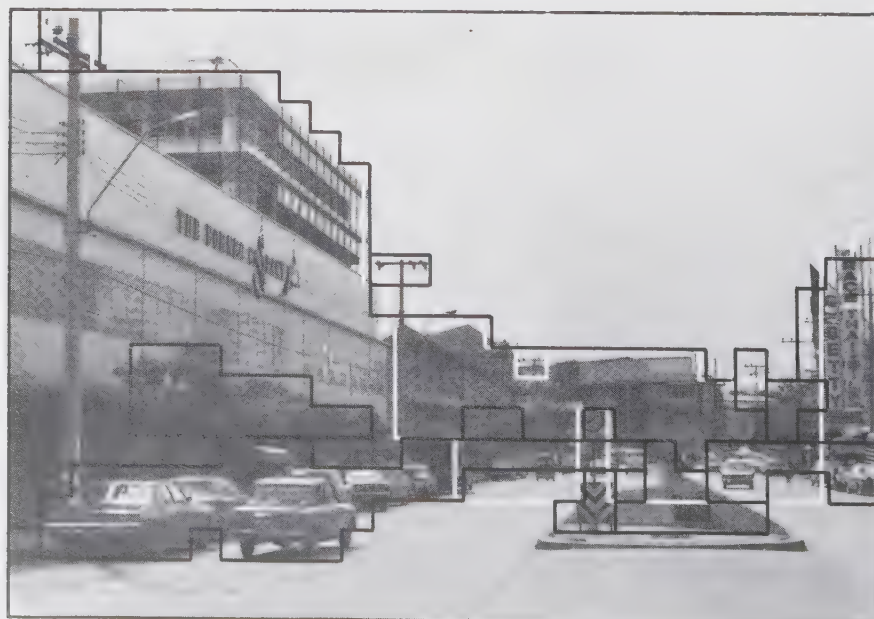
Photograph No. 16
 

| Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|----------|----------|----------|----------|----------|
| 0.45086  | 0.60324  | 0.56314  | -0.26012 | 0.07141  |



Photograph No. 17
 

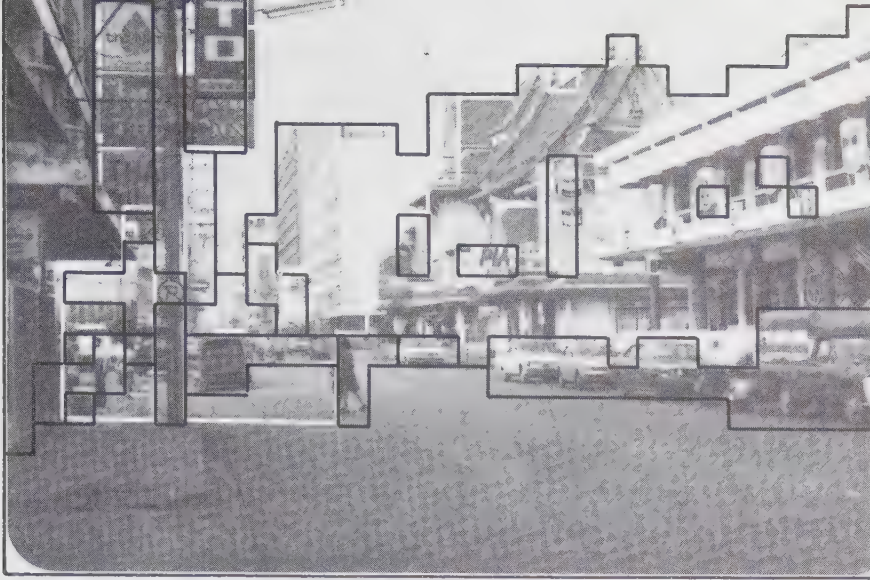
| Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|----------|----------|----------|----------|----------|
| 0.88160  | 0.25423  | 0.26043  | 0.23234  | 0.02956  |



Photograph No. 18
 

| Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|----------|----------|----------|----------|----------|
| 0.94861  | 0.16350  | 0.20724  | 0.13105  | 0.05448  |





Photograph No. 19
 

| Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|----------|----------|----------|----------|----------|
| 0.91125  | -0.12473 | -0.00226 | 0.19639  | 0.29630  |



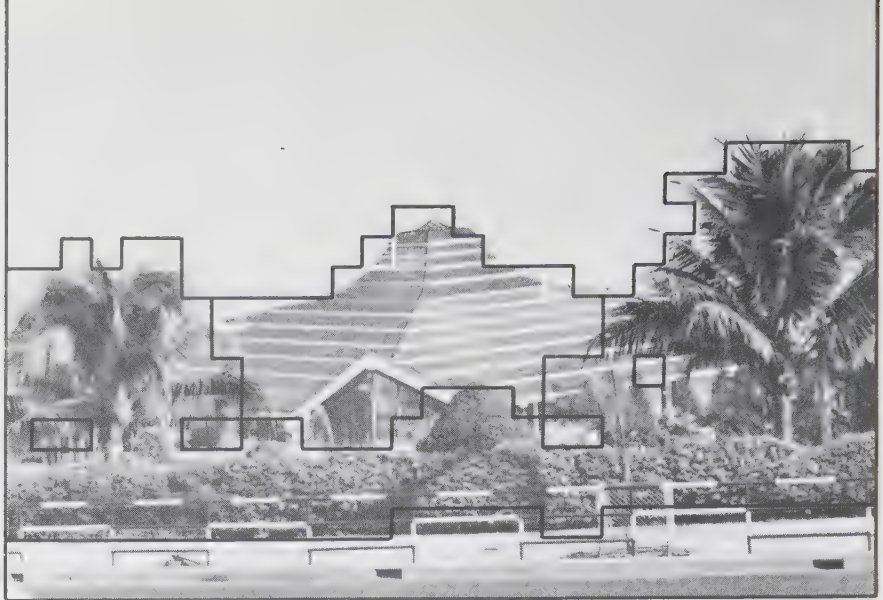
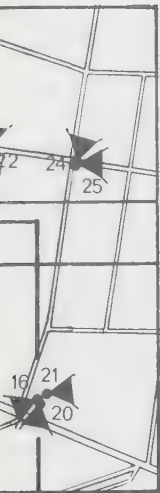
Photograph No. 20
 

| Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|----------|----------|----------|----------|----------|
| 0.06868  | 0.92577  | 0.16948  | 0.26913  | 0.11219  |



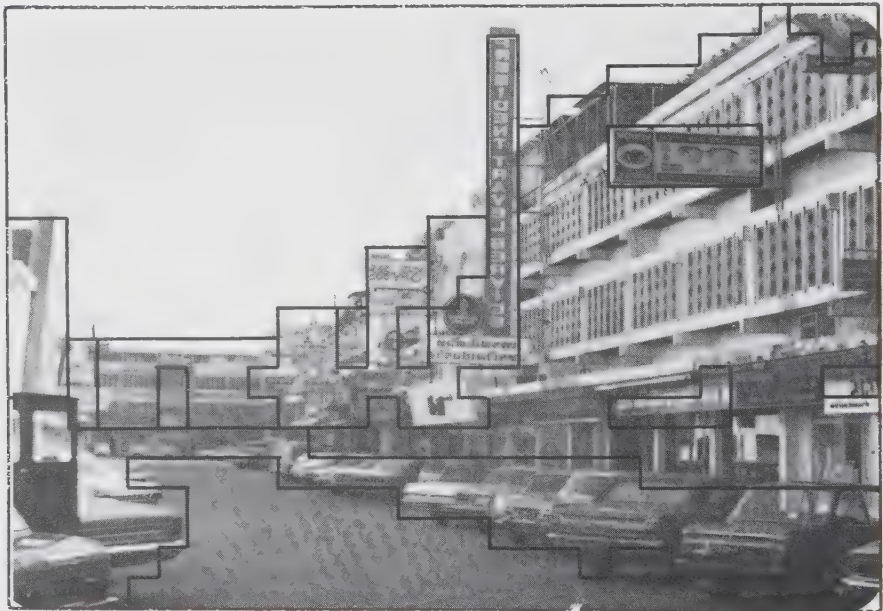
Photograph No. 21
 

| Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|----------|----------|----------|----------|----------|
| -0.10964 | 0.96324  | 0.16683  | 0.00940  | 0.00439  |



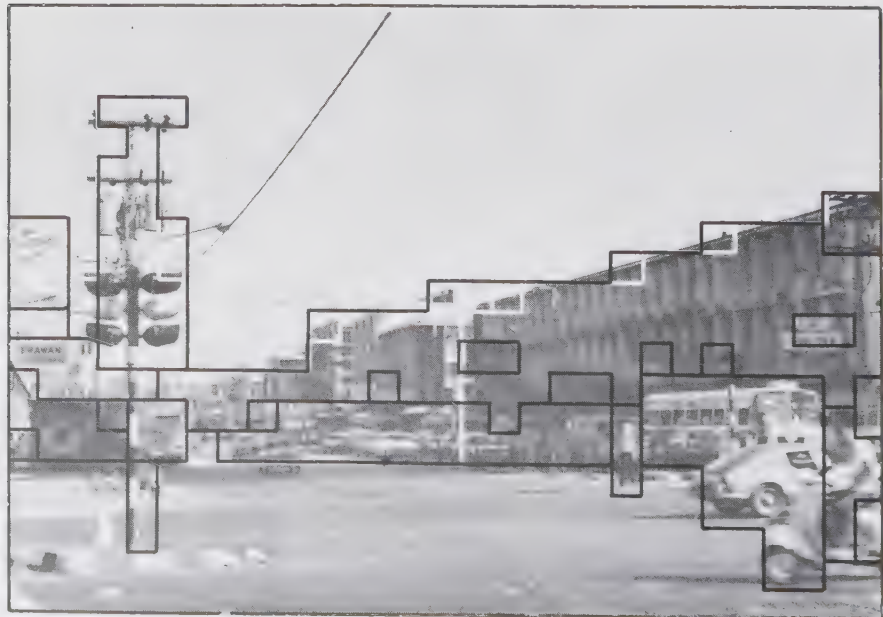
Photograph No. 22

| Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|----------|----------|----------|----------|----------|
| 0.56938  | 0.16599  | 0.54422  | 0.55405  | -0.06582 |



Photograph No. 23

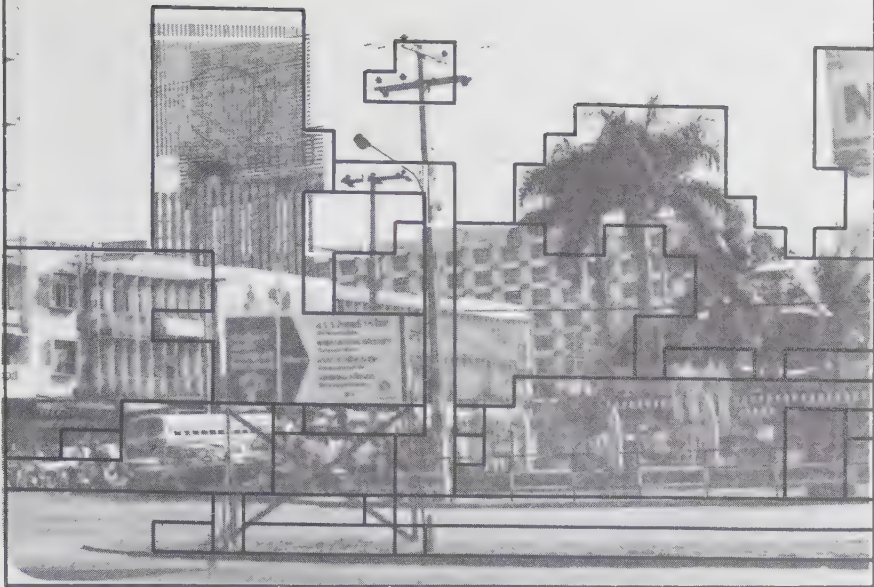
| Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|----------|----------|----------|----------|----------|
| 0.96570  | 0.01284  | 0.09282  | 0.13502  | -0.11689 |



Photograph No. 24

| Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|----------|----------|----------|----------|----------|
| 0.82773  | 0.15360  | 0.51465  | 0.04969  | 0.04123  |

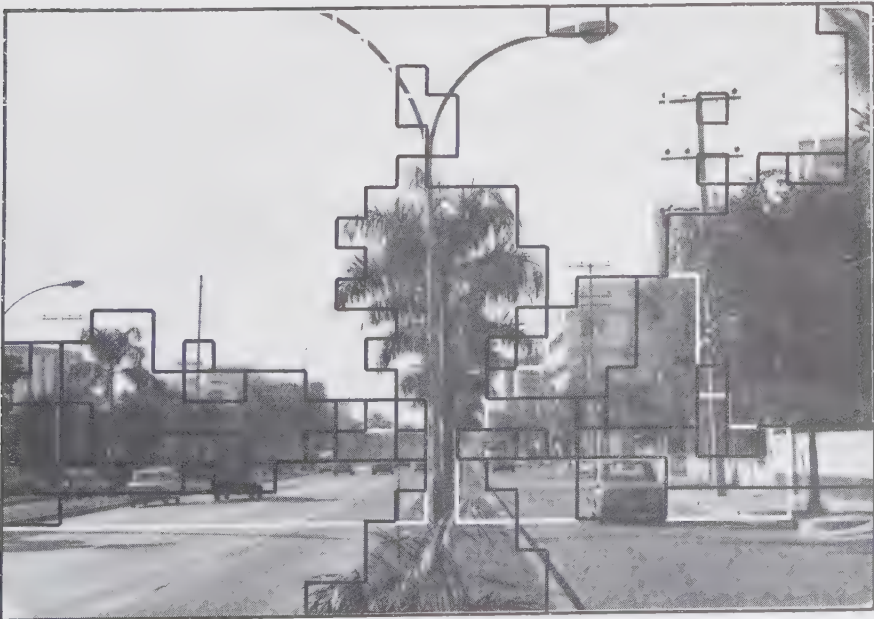




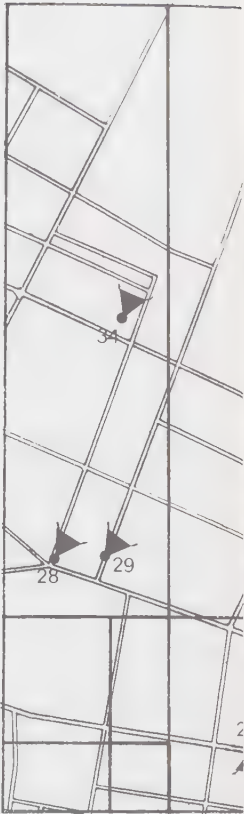
|                   |          |          |          |          |          |
|-------------------|----------|----------|----------|----------|----------|
|                   | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
| Photograph No. 25 | 0.86503  | -0.02000 | 0.24482  | 0.33579  | -0.06761 |

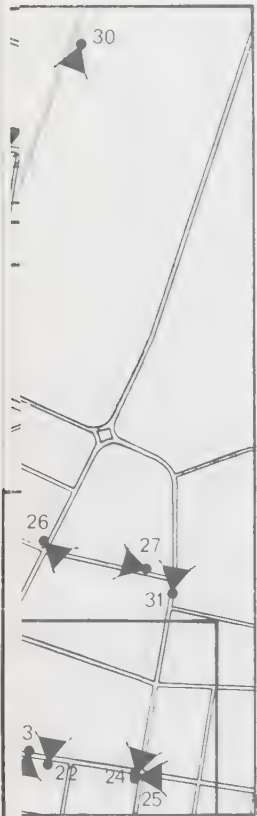


|                   |          |          |          |          |          |
|-------------------|----------|----------|----------|----------|----------|
|                   | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
| Photograph No. 26 | 0.82769  | 0.24604  | 0.44540  | 0.16167  | -0.10928 |



|                   |          |          |          |          |          |
|-------------------|----------|----------|----------|----------|----------|
|                   | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
| Photograph No. 27 | 0.39490  | 0.48350  | 0.64089  | 0.27588  | 0.25368  |





Photograph No. 28

| Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|----------|----------|----------|----------|----------|
| 0.37892  | 0.20098  | 0.80530  | 0.30727  | -0.05734 |



Photograph No. 29

| Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|----------|----------|----------|----------|----------|
| 0.88357  | 0.18968  | 0.36490  | 0.03894  | 0.16845  |



Photograph No. 30

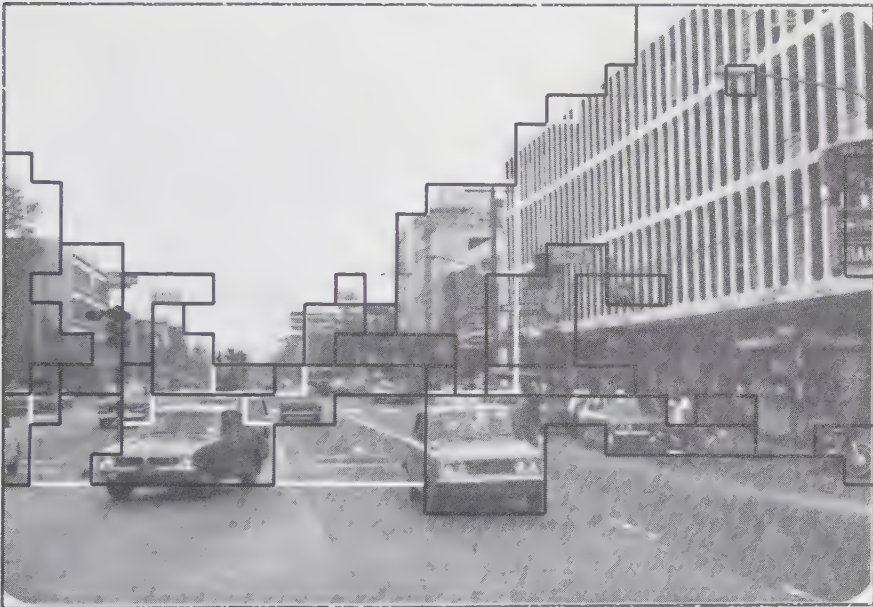
| Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|----------|----------|----------|----------|----------|
| -0.12233 | 0.97319  | 0.03320  | -0.04090 | 0.06685  |





Photograph No. 31

| Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|----------|----------|----------|----------|----------|
| 0.87830  | 0.05224  | 0.34806  | 0.30073  | 0.06247  |



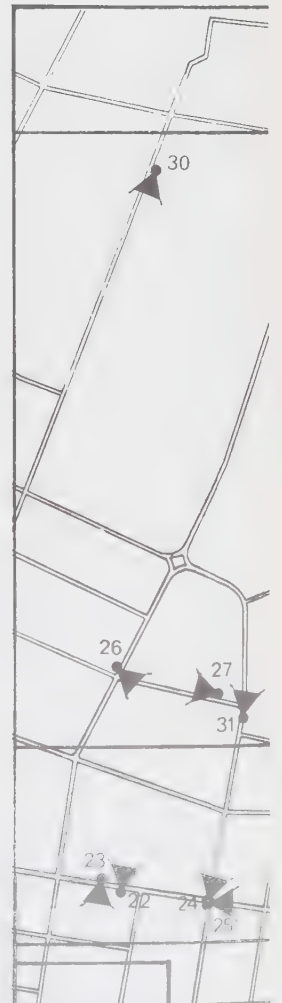
Photograph No. 32

| Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|----------|----------|----------|----------|----------|
| 0.93257  | 0.09326  | 0.14653  | 0.12216  | 0.26249  |

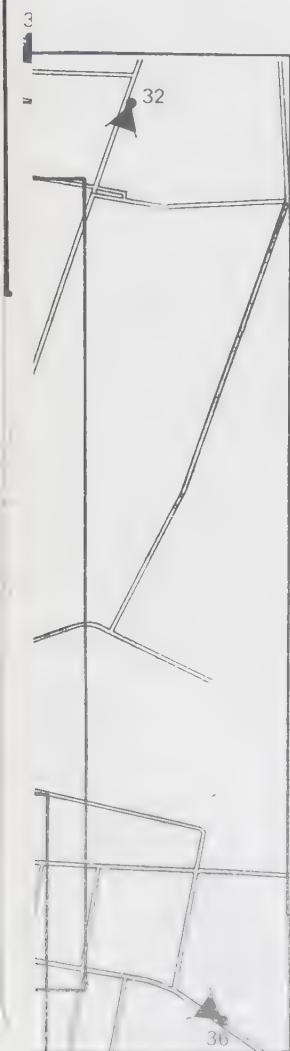
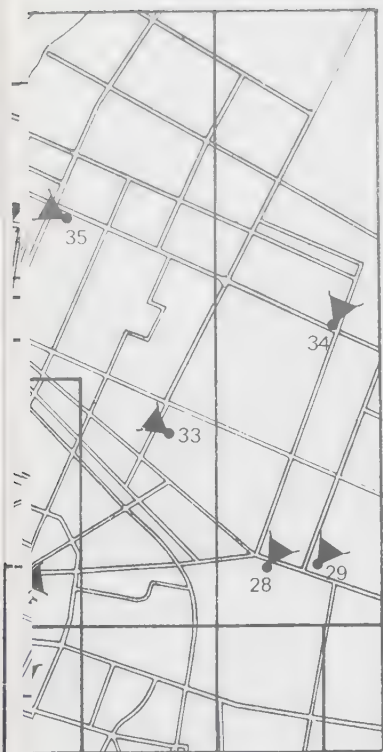


Photograph No. 33

| Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|----------|----------|----------|----------|----------|
| 0.61906  | 0.00192  | 0.03548  | 0.74062  | -0.06133 |







Photograph No. 34

| Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|----------|----------|----------|----------|----------|
| 0.67438  | 0.08940  | 0.34349  | 0.60231  | 0.20236  |



Photograph No. 35

| Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|----------|----------|----------|----------|----------|
| 0.87103  | -0.03137 | 0.29850  | 0.27849  | 0.17815  |



Photograph No. 36

| Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|----------|----------|----------|----------|----------|
| 0.88399  | 0.05084  | 0.37561  | 0.25351  | 0.05494  |



Photograph No. 37

| Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|----------|----------|----------|----------|----------|
| 0.46735  | 0.33899  | 0.72887  | 0.27517  | 0.03014  |



Photograph No. 38

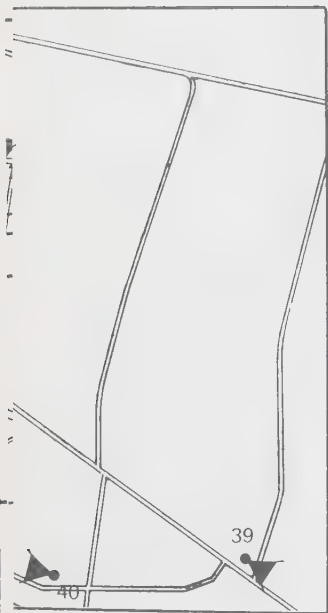
| Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|----------|----------|----------|----------|----------|
| 0.44539  | 0.00675  | 0.26485  | 0.82913  | 0.15265  |



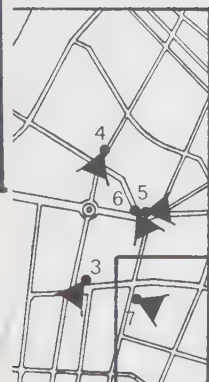
Photograph No. 39

| Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|----------|----------|----------|----------|----------|
| 0.78274  | 0.02232  | 0.54155  | 0.15150  | 0.12178  |





|                   |          |          |          |          |          |
|-------------------|----------|----------|----------|----------|----------|
|                   | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
| Photograph No. 40 | 0.86554  | 0.31291  | 0.30005  | 0.01361  | 0.16630  |



|                   |          |          |          |          |          |
|-------------------|----------|----------|----------|----------|----------|
|                   | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
| Photograph No. 41 | 0.35403  | 0.78575  | 0.35757  | 0.01739  | -0.28779 |



Locations of hotels used by Swiss tour operators, and  
selected Congested Area within the Greater Bangkok Area

LEGEND:



Congested Area

(In accordance with the Office of  
Metropolitan Traffic Planning,  
Short Term Program, p. 43)



Locations of  
Hotels used by Swiss  
Tour operators



### 3.33. The physical-functional (visual-cultural) variables

The point of departure is the selection of principal variables which are theoretically important as independent variables.

Based on the visual qualities assessment checklist (p. 108) and the landscape characteristics and scenic quality dimensions (p. 107) which, both of them, were developed for recreational purposes in a rural landscape, this study had to search for dimensions which promised to be more adequate to the urbanized environment of the city-destination.

A number of landscape characteristics were investigated that have been hypothesized in the research literature and in previous planning studies to be highly correlated with scenic quality (FABOS, 1973; ZUBE, 1973; LINTON, 1968; GREENE, 1972; KIEMSTEDT, 1971; SMARDON, 1975). Twenty-three dimensions were developed from these characteristics. The major categories and related dimensions are the following:

TABLE 25 Landscape characteristics and scenic quality

|          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Landform | <p>Relative relief ratio: the range of vertical elevations (based on sample points) per unit area.</p> <p>Absolute relative relief: the range of vertical elevations (based on sample points) within the view area.</p> <p>Mean slope distribution: the mean of a random sample of slopes, the steepness of landform.</p> <p>Topographic texture: The degree of dissection of the land surface, the drainage density.</p> <p>Ruggedness number: the roughness of landform based on absolute relative relief, mean slope, and topographic texture.</p> <p>Spatial definition index: the amount of enclosure created by landform.</p> |
| Land use | <p>Land-use diversity: the relative areal distribution of land uses within the view.</p> <p>Naturalism index: the degree of naturalism as indicated by land use.</p> <p>Percentage tree cover: the amount of land covered by trees per unit area.</p>                                                                                                                                                                                                                                                                                                                                                                               |
| Edges    | <p>Land-use edge density: the amount of edge created by adjacent land uses per unit area.</p> <p>Land-use edge variety: the variety of land uses as indicated by the number of edge types per view.</p> <p>Land-use compatibility: an indication of the visual congruence of adjacent land uses.</p>                                                                                                                                                                                                                                                                                                                                |
| Contrast | <p>Height contrast: the difference in height of the dominant elements of adjacent land uses.</p> <p>Grain contrast: the difference in the size of the individual elements of adjacent land uses.</p> <p>Spacing contrast: the difference in the spatial distribution of the elements of adjacent land uses.</p> <p>Evenness contrast: the difference in size, distribution, and height of elements of adjacent land uses.</p> <p>Naturalism contrast: the difference in naturalism of adjacent land uses.</p>                                                                                                                       |
| Water    | <p>Water-edge density: the amount of land/water edge per unit area.</p> <p>Percentage water area: the amount of surface water per unit area.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| View     | <p>Area of view: the size of the view area.</p> <p>Length of view: the maximum length of view.</p> <p>Viewer position : the relative vertical position of the viewer to the view.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                               |

(ZUBE, PITT, ANDERSON, 1975, p. 165)

TABLE 26

Visual qualities assessment checklist

| A. Characteristics and Components from Which Visual Qualities Are Derived                                       | B. Quality Impact on the Landscape | C. Inherent Qualities of Characteristics and Components |   |   |       |   |   |                 |   |   |                      |   |   |
|-----------------------------------------------------------------------------------------------------------------|------------------------------------|---------------------------------------------------------|---|---|-------|---|---|-----------------|---|---|----------------------|---|---|
|                                                                                                                 |                                    | Proportion                                              |   |   | Scale |   |   | Outline in Plan |   |   | Profile in Elevation |   |   |
|                                                                                                                 |                                    | Shape Form                                              |   |   | Color |   |   | Texture Pattern |   |   |                      |   |   |
|                                                                                                                 |                                    | +                                                       | 0 | - | +     | 0 | - | +               | 0 | - | +                    | 0 | - |
| 1. Overall identity imageability (sense of unity and diversity of interest, balance of contrast and uniformity) |                                    |                                                         |   |   |       |   |   |                 |   |   |                      |   |   |
| 2. Spatial interest and continuity                                                                              |                                    |                                                         |   |   |       |   |   |                 |   |   |                      |   |   |
| 3. Views and landmarks                                                                                          |                                    |                                                         |   |   |       |   |   |                 |   |   |                      |   |   |
| 4. Viewpoints                                                                                                   |                                    |                                                         |   |   |       |   |   |                 |   |   |                      |   |   |
| 5. Landform                                                                                                     |                                    |                                                         |   |   |       |   |   |                 |   |   |                      |   |   |
| 6. Natural herbaceous vegetation                                                                                |                                    |                                                         |   |   |       |   |   |                 |   |   |                      |   |   |
| 7. Cultivated vegetation                                                                                        |                                    |                                                         |   |   |       |   |   |                 |   |   |                      |   |   |
| 8. Trees and shrubs<br>Hedgerows<br>Small woods<br>Plantation                                                   |                                    |                                                         |   |   |       |   |   |                 |   |   |                      |   |   |
| 9. Parklands and gardens                                                                                        |                                    |                                                         |   |   |       |   |   |                 |   |   |                      |   |   |
| 10. Water areas                                                                                                 |                                    |                                                         |   |   |       |   |   |                 |   |   |                      |   |   |
| 11. Watercourses                                                                                                |                                    |                                                         |   |   |       |   |   |                 |   |   |                      |   |   |
| 12. Main routes                                                                                                 |                                    |                                                         |   |   |       |   |   |                 |   |   |                      |   |   |
| 13. Walks                                                                                                       |                                    |                                                         |   |   |       |   |   |                 |   |   |                      |   |   |
| 14. Major features and structures                                                                               |                                    |                                                         |   |   |       |   |   |                 |   |   |                      |   |   |
| 15. Minor features<br>Small buildings<br>Gates<br>Bridges<br>Fences                                             |                                    |                                                         |   |   |       |   |   |                 |   |   |                      |   |   |
| 16. Atmospheric qualities                                                                                       |                                    |                                                         |   |   |       |   |   |                 |   |   |                      |   |   |
| 17. Wildlife and domestic animals                                                                               |                                    |                                                         |   |   |       |   |   |                 |   |   |                      |   |   |

Note: Shaded area indicates where an assessment can appropriately be recorded.

1. The checklist indicates in summary form a range of aesthetic qualities that may be recorded in landscape. The objective is simply to indicate those qualities which give a landscape its perceptual character, as an aid to the making of policies for the conservation of that landscape.
2. The checklist recognizes that qualities are derived from the landscape seen as a whole, from the relationships among the objects seen in the landscape, and from the objects in relation to their landscape setting (columns B and C).
3. The checklist acknowledges that visual qualities may derive from the aggregate effect of small qualities as well as the single effect of large quality.
4. Those qualities derived from movement through landscape as well as those obtained from viewing the landscape at selected viewpoint are included.
5. The checklist does not indicate specifically those additional qualities that derive from the visual relationship among the characteristic and components of landscape, except in as far as they affect the overall identity.
6. The checklist is not a score sheet, but could be a useful aide memoire to assessors and could be used to produce summary indications on the range of visual qualities in any landscape.
7. If the qualities are recorded as positive (+), neutral (0), or negative (-), indication is recorded of the visual impact. Such assessments have no significance if expressed in more specific measured terms, however, or if aggregated in any way.

Source: LAURIE, 1975, pp. 112 - 113.

To find out adequate sources of variables posed serious difficulties. Concerning construction, for example, collected and checked data existed only for the the last two years.

Furthermore, a disadvantage consisted in the varying size of statistical units, which, for technical reasons, had to be used as Sphere II units. Taken into consideration the historical formation of the districts, the development of the town (see appendix: secondary literature) and the generally resulting homogeneity within their boundaries concerning the variables used, we do not think that the general image as held by the tourists is distorted or misinterpreted by the use of this kind of predictor-areas.

The variables introduced are to be found in appendix 7 and under 4.3.

By choosing these variables attempt was made to view the urban area as a spatially organised whole.



### 3.4. Experimental procedures

The primary data in this study was derived from 211 photograph tests and personal interviews with visitors departing Thailand. The photograph test alone produced some 30 000 pieces of information.

It had been hoped to base results on up to 400 package tourists to the Bangkok area. In fact a total of 1302 package tourists on packages organised by Swiss tour operators was contacted. Finally, 211 participated in the tests and interviews (see appendix 3).

Throughout the planning of the survey, considerable attention was paid to the representativeness of these results for tourists on such packages, and therefore their usefulness as indicators of the general image of the package tourists who had embarked in Switzerland.

For details, see the intermediary chapter 1.333. and appendix 3.

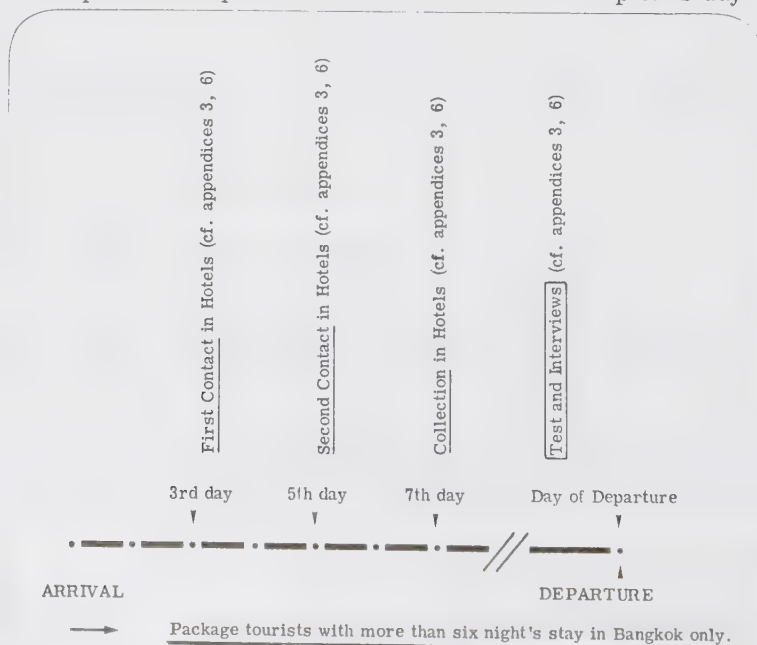
The study was designed to gather information from visitors in a relatively relaxed and undistracting atmosphere. To this end, the test with photographs (as presented in appendix 6) and, to a smaller extent, face-to-face interviews of visitors were conducted in the Departure Lounge of Don Muang Airport after they had cleared Customs and Immigration and had time on their hands before boarding their departing flights.

Interviews were conducted in the tourists' native languages, i.e. in Swiss German, in German, or in French. The interview guide or questionnaire used to collect the information was prepared in two strictly comparable language versions (German, French, see appendix 6).

Immigration records (disembarkation cards) and tour operators' as well as handling agent's records ("Rooming-", "Final-", "Booking"-Lists) have consistently provided us with comprehensive data on the composition of the visitor group by nationality and other background variables, so no emphasis was made in these interviews to specifically develop this information.

The data collection included eight months of survey for the background variables and six months of tests and interviews (January 1975 - June 1975).

FIGURE 45 The final experimental procedure as effectuated after a pilot study





### 3.5. Statistical methods of analysis, a theoretical abstract

#### 3.51. Characteristics of the data

##### 3.511. Universe and sample

The degree of interpretation of the matrices is characterised by the fact that we are working  
(1) with a sample in sphere I (photo-scene compositional variables)

GALTUNG makes a distinction between the substantive hypothesis which is about reality and to be tested by means of the data, and the generalization hypothesis which is about the data. Usually, hypotheses have to be tested on a sample, because the whole universe is not available and the problem is whether the finding can be 'generalized' to the universe. Since we have a sample, the data are imperfect ; they may be subject to sampling fluctuations. What we have found in the data may have been an accident which may happen when a sample less than the universe is made use of (for other sources of imperfection of data, i.e. not sampling errors, like low validity, coding errors etc., compare GALTUNG, 1970, p. 341.)

In the following we shall limit ourselves to the testing of generalization hypotheses.

"To test the substantive part of the hypothesis some kind of empirical unit is needed for further scrutiny about its 'state of affairs'. To test the generalizing part of the hypothesis some kind of universe of interest is needed to see whether the same 'state of affairs' is found."

To study the townscape assessment of Bangkok made by European package tourists, we can adopt two points of view: either regard

(1) the link-photographs and/or

(2) Bangkok and/or

(3) the European tourists on packages organised by Swiss tour operators

as our universes of interest, or as empirical units where the findings will be subjected to tests of generalization.

For (2) and (3), we shall adopt the first point of view, and look at the outcome of the EoA as given by the percentage of photograph-selections (now in respect to the latent information about (2)) for the various answers.

This is clearly a substantive hypothesis with no generalization components as the result is interesting enough in its own right.

When all the photographs selected or not selected have been counted, and controlled, we have what may be called perfect knowledge relevant to the hypothesis  $H_0$  about latent real world-information about Bangkok Metropolis.

"But the cases of imperfect knowledge are numerous.

A good typology of 'imperfect knowledge' has not been developed, as far as we know. Distinctions can be made between imperfection due to errors of observation or other shortcomings of otherwise relevant (valid) data, and imperfection due to different degrees of irrelevance (invalidity) of data. And a very important special case of the first category is incomplete data, based on samples. But sampling is certainly not the only or most important source of error...

Thus one can distinguish between four cases:

(1) The case of perfect data about a universe: where by 'universe' we actually mean an empirical unit which is of substantive interest to us in its own right...

(2) The case of imperfect data about a universe: where we must know the nature of imperfection. If it is similar to sampling fluctuations and several conditions pertaining to the model used are satisfied, tests of statistical hypotheses are applicable to ascertain whether one can generalize from the data or not ...

(3) The case of perfect data about a sample: where substantive hypotheses can be tested directly on the data, but will be of less interest, since a 'sample' by definition is not of substantive interest to us in its own right. Hence only hypotheses that are not only substantively tenable but also significant or generalizable are of real substantive interest because they may tell us something about the universe in which we are interested | case (3) above is only a special case of (2) |.

(4) The case of imperfect data about a sample: which, of course, is a rather unhappy case, but a most common one in sociological research, for instance in the case of samples with attrition due to 'not-at-home', 'refusals', 'panel mortality' etc. Analytically, the case primarily calls for a perfection of data, secondly generalization of the perfected data, if possible. "

(GALTUNG, 1970, p. 363)

In the present study, we consider the four spheres of investigations as belonging to the above mentioned cases as follows:

Sphere I (Photo-scene compositional variables): Case 4, i.e. the case of imperfect data about a sample.

Sphere II (Physical-functional variables) : Case 2, i.e. the case of imperfect data about a universe.

Sphere IV (The package tourists investigated) : Case 2, i.e. the case of imperfect data about a universe.

It shall be pointed out that testing generalization hypotheses is neither more nor less important than testing substantive hypotheses - it is simply an analytically distinct process which takes on a superior value when we have data based on a sample with no intrinsic value per se.

The data form a universe, but are imperfect

"The idea would be that measurement or observation techniques are such as to produce a number of possible and different data matrices, out of which we have obtained one; and that this one data matrix can be meaningfully compared with a distribution of possible data matrices, under the hypothesis that differences, etc. found in the data are due to measurement or observation errors only. But there is no reason a priori to assume that models that may function well for sampling fluctuations also function well for observation fluctuations.

And we doubt that good models, comparable to the classical gaussian error curves in physical measurement or the 'personal equations' of astronomical observations, exist in social science research so far. The bias is hard to catch (GALTUNG 1970, p. 364)

We treat the sphere II (physical-functional variables) as imperfect data about a universe (cf. (2)).

One could nevertheless - e.g. for reasons of inductive logic - assume these data to be about a sample coming from a hypothetical universe.

To us this is case (1) in the list above; we see no sense in invoking an hypothetical universe except that of trying to legitimize the use of techniques that may look convincing although they are irrelevant.

We find this unreasonable when we have the universe in our data, and since we are studying this particular world.

Significance levels seem quite out of order, since there is no operational interpretation of the level of significance. And even if there were, it is not obvious that degree of confirmation must be given a probability interpretation if other interpretations are available.

For Bangkok Metropolis the data obtained concern precisely the townscape that interests us - we are interested in this particular configuration and nothing else.

If we want to accept the interpretation of the universe as a sample, there is still one problem:

"how is the sample obtained, what is the hypothetical sampling model from the hypothetical universe? ... Since the significance level depends not only on the size of the sample and the universe, but also on the sampling method, this would affect the significance level." (see GALTUNG, 1970, p. 369)

We think that, under the present assumptions, application of statistical tests to the sphere II (physical-functional variables about the universe, i.e. Bangkok Metropolis) is misplaced, since there is no operational definition about hypothetical sampling.

Since we are not discussing fluctuations due to errors, only sampling fluctuations, this leaves case (3) as the candidate for the application of statistical tests:

"... In order to develop a model, or sampling distribution, the statistician must have known probability factors somewhere. This means that not only must the sample be a probability sample, but its elements must also have known probabilities of being selected, and these are only necessary, not sufficient conditions. What the statistician then does is to compare the empirical sample with a model of all possible samples selected with the same probabilities. To reject the null hypothesis, the sampling specifications in the model must reflect the sampling method used; otherwise, we cannot be sure on which basis we reject: the conditions of the null hypothesis, or the unsatisfied conditions of the sampling specifications " (GALTUNG, 1970, pp. 369/370).

(2) we are working with a universe in sphere II (physical-functional variables)

The latter consists of all the districts of Bangkok which can with certainty be assumed to be visited by tourists who accordingly have mental pictures of them.

As long as the results of the research are not generalized beyond the units considered (see above), they are statistically valid with an error probability of zero; if the units considered are subject to generalization the whole investigation will take on the character of a case study.

The reason for this is that the 26 subdistricts under consideration are not representative even for South Asian metropoli.

Working with a universe has the advantage that one can ignore all problems of inferential statistics.

For a survey of conditions for statistical tests, see GALTUNG, 1970, p. 371.



### 3.512. The correlation measurement

A measure of association expresses the degree of connection between variables. The characteristics of the body of data and the number of cases measured largely determine the choice of the measure of association. The variables of both sphere I and sphere II are in interval scale (exceptions: V77 and V78 in nominal scale). An evaluation assisted by the Pearson correlation coefficient is justified as a first step.

At this moment it seems to us that the limitations should be mentioned.

- (1) The Pearson correlations always test only a linear model. It is not necessarily true that no relationships exist for two variables which appear to be uncorrelated. It is only true that there is no linear relationship between them.

The correlation coefficient herewith measures the quality of the fit of the data to the linear equations expected. Other equations do not receive testing.

- (2) There is reason to suspect that some of the variable values used are not without error. This is probably true especially for the physical-functional data.

There is no possibility of determining whether the errors are spread systematically or at random over the body of data.

In the most favourable case there is a random distribution because the result of this is only a reduction in the strength of the correlation (according to the degree of error frequency).

In the other cases the result is a systematically false interpretation.

These considerations demand in practice a limitation of the interpretation to clear relationships.

## 3.52. Multivariate analysis

### 3.521. Introduction

The level of analysis, the depth of insights, and the subtlety of results in a survey analysis is above all a function of how many variables the analyst is able to handle simultaneously. Generally, we can distinguish between levels of analysis depending on how many variables are used at the time.

It is customary to call analysis on any level beyond the second level (three and more variables) for multivariate analysis. GALTUNG (1970) writes: "It is a good term because it points out that variables are treated together: subtlety is not obtained by means of many-variable analysis, one at a time, but possibly by means of multivariate analysis" (p. 399).

### 3.522. Factor analysis

Only one group of variables is dealt with in the factor analysis.

The internal relationships of the group are utilized for a simpler presentation of the sphere of investigation than is the case when a totality of the individual variables is used.

The factor analysis may be used for various purposes. (UEBERLA, 1968)

At the beginning of every analysis the goal must be clearly in view.

UEBERLA (1968) distinguishes the following goals as the most important possibilities:

- (1) The new structuring of a little known area,
- (2) the estimation of quantities which are not directly measurable,
- (3) the mere reduction of data with no demand on the ability of the factors to be interpreted.

The second as well as the third goal are of interest here.

UEBERLA (1968) writes:

"Vor allem, wenn die Variablen mehr oder weniger planlos gemessen wurden, weil eben eine Gruppe von Versuchspersonen und einige Tests oder Messinstrumente zur Verfügung standen, sollte man lediglich eine Datenreduktion mit einer Hauptkomponentenanalyse anstreben. Nur dann, wenn man die Versuchsplanung von vornherein auf eine Faktorenanalyse abstellen kann, und wenn man die Variablenauswahl speziell für eine Faktorenanalyse trifft, sollte man mehr als eine Datenreduktion planen. Manche bekanntgewordenen Faktorenanalysen lassen sich streng genommen nur als Datenreduktionen auffassen, obwohl sie in der Interpretation darüber hinausgehen. Eine bloße Datenreduktion lässt sich viel leichter erreichen als die vorher genannten beiden Ziele"(p.356).

Whether one should stop at the reduction of data or whether one should continue towards the evaluation of unmeasurable quantities depends mainly on how representative the data at hand are considered to be for the compositional and physical-functional position of the units to be described.

The present body of data contains the maximum possible amount of information which can be sought out about Bangkok.

It does not seem impossible from this to rotate to the simple structure and so to the discovery of unmeasurable quantities with the aid of factor analysis.

This requires that, if possible, only theoretically relevant variables are considered which seem to be directly or indirectly related with the dependent variables.

A drastic reduction of the number of variables - not necessarily of the dimensions - is already necessary from the demand made by statistics whereby the number of units should be greater than three times the number of variables.

### 3.523. Multiple regression analysis

The multiple regression is a process in which the linear combination for a group of variables is sought which makes possible the best estimate of a criteria variable.

The single variable is placed opposite a group of variables and their relationship is examined.

Multiple regression may be viewed either as a descriptive tool by which the linear dependence of one variable on others is summarized and decomposed, or as an inferential tool by which the relationships in the population are evaluated from the examination of sample data.

The most important uses of the technique as a descriptive tool are:

- (1) to find the best linear prediction equation and evaluate its prediction accuracy:
- (2) to control for other confounding factors in order to evaluate the contribution of a specific variable or set of variables: and
- (3) to find structural relations and provide explanations for seemingly complex multivariate relationships, such as is done in path analysis.

(for more elaborate description, see DRAPER and SMITH, 1966, DANIEL and WOOD, 1971, KIM and KOHOUT, 1975).

For every use of regression as a descriptive tool, there is usually a corresponding question of statistical inference, whether one can generalize the results of the sample observation to the universe. The problems of statistical inference can be conveniently grouped into two general categories: estimation and hypothesis testing. The purpose of estimation is to find the most likely population parameters from the examination of sample observations.

The main focus here is in delineating a particular value or values for the population. The researcher may, on the other hand, focus on evaluating various hypotheses about the population. The null hypothesis is tested against the alternative hypothesis that its value is greater or less than zero.

The most often used null hypotheses in multiple regression are:

- (1) there is no linear relationship between a dependent variable and a set of independent variables, for example, that the Extent of Agreement is not related to any one of the photo-scene compositional or physical-functional variables.
- (2) a particular independent variable has no linear effect on the dependent variable once the effects of other independent variables are adjusted for. For example, there is no relationship between the EoA and a particular photo-compositional or physical-functional variable; the observed relationship between the two is merely due to the sampling fluctuation.

In section 3.524. the demands of the multiple regression analysis are dealt with. It is shown there that multiple regression analyses are ideally carried out with orthogonal variables. This means that their intercorrelations should equal zero.

Only in this way can the contributions of the individual predictors be kept under control, i.e. their contribution to the explained variance be estimated.

### 3.524. Analysis of variance, problems and assumptions

However, although all this is relatively clear in principle, there nevertheless remain three related problems of considerable importance:

- (1) How does one measure the extent to which one independent variable "accounts for the variation" in one dependent variable?
- (2) How does one measure the relative contribution of several independent variables on one dependent variable?
- (3) When does one declare that a multivariate analysis is completed?

(GALTUNG, 1970, p. 425)

"The key to all three problems lies in the expression "I accounts for the variation in D". If the "variation" in D is measured by means of the variance of D and the association between I and D by means of the product-moment correlation coefficient, then we may use the standard interpretation of  $r^2$  as the proportion of the variance of D that is accounted for by I... This interpretation is only valid provided:

- (1) interval scale measures exist both for I and D,
- (2) the regression curve for D is linear ...

Heavy criticism can be raised against this procedure. It is of limited value because of the infrequency with which interval scale measures are found in social research. Secondly, and perhaps more importantly: the lack of rationale (except pure mathematical convenience) for using variance as a measure of variation and correlation ratios or coefficients as measures of association. If one is satisfied with these measures, then they should be used, provided the conditions are fulfilled - if not, something else should be developed that corresponds better to the nature of the data of social research. For this purpose it is suggested to work with percentage differences as measures of the variation of D as well as of the association between I and D." (GALTUNG, pp. 425/426)



Analysis of variance is actually based on five assumptions:

- (1) the dependent variable is interval scale (the independent variables can have any level of measurement)
  - (2) arithmetic means are accepted as measures of average effect, and variances as measures of variation in effect
  - (3) replications of the table would yield distributions that would
    - (a) be normal
    - (b) be mutually independent
    - (c) be homoscedastic (have the same dispersion).
- (GALTUNG, 1970, p. 414)

The reason for the choice of the prediction equation for standardized values is that the amount of the regression coefficients is not dependent on variances which are only effected by the particular scaling methods.

These are in any case usually irrelevant to the facts.

This variance, on the other hand, certainly influences the size of the regression coefficients for the independent variables.

The following conclusion is made from the regression equations for standardized values : the variables determine the criteria variables according to the square of the coefficients  $b$ .

This interpretation does not, however, take into consideration the fact that the meaning of the predictor for the determination of the criteria can be deducted alone from the amount of variance which it explains in the criteria.

This is the only meaningful concept which can be formed concerning the problem:

Degree of dependence of a criterium on a predictor. Now, every predictor does not, however, contribute to the variance of the predictor according to the square of its coefficients alone.

In addition, the correlations of a predictor with all the other predictors influence the variance which is explainable in the criteria, as do the products of the coefficients.

For this reason no statement can be made concerning how much the criterium variable is determined by one single predictor.

Because of resulting clarity of conditions it is frequently recommended that one calculate multiple regression analysis with orthogonal predictors.

This advice sounds extremely theoretical since orthogonality is never to be found in practice as an empirical state of data.

It is, however, possible to transform every group of variables into a group of orthogonal variables without any loss of information at all and to use these transformed variables as predictors in a multiple regression analysis. This process is to be recommended as long as the transformed variables are meaningful for the investigator.

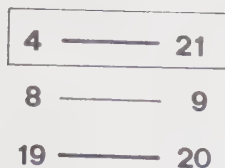
The mathematical procedures which this transformation permits is called principal components analysis.

Its results are presented in chapters 4.4., 5.12. and appendix 8.

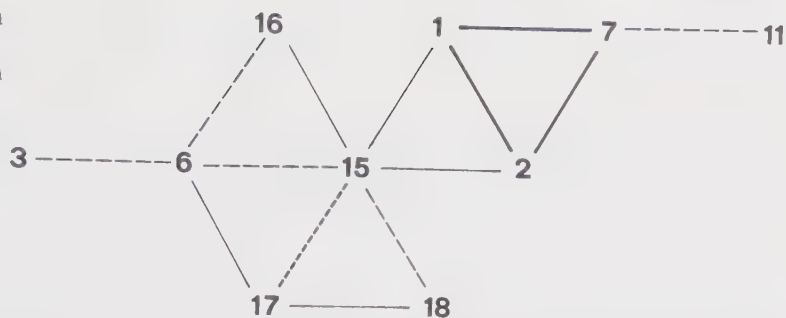


FIGURE 47 Intercorrelations  
between Sphere I  
variables

- positive correlation  
( $|r| > .8$ )
- positive correlation  
( $.61 < |r| < .8$ )
- - - negative correlation  
( $|r| > .8$ )
- - - negative correlation  
( $.61 < |r| < .8$ )



Significant correlation  
( $p = .05$ )



V15 Area foreground

negative correlation ( $|r| > .8$ )

V17 Area middleground

negative correlations ( $.61 < |r| < .8$ )

V18 Perimeter middleground

V16 Perimeter foreground

positive correlations ( $.61 < |r| < .8$ )

V1 Areas housing + utilities + signs +  
monuments, bridges, walls

V2 Areas housing + monuments, bridges, walls

V16 Perimeter foreground

V6 Area water

negative correlations ( $.61 < |r| < .8$ )

V16 Perimeter foreground

V15 Area foreground

V3 Areas open spaces + streets

positive correlations ( $.61 < |r| < .8$ )

V17 Area middleground



V15            Area foreground

V15 (Area foreground) has a close correlation with V16 (Perimeter foreground). This means that, the larger the proportion of the foreground is, the larger its perimeter. It is a question of a minor relationship. Just as selfevident is the close negative correlation with V17 (Area middleground):

The area which is left for the middleground is reduced when the foreground is increased, whereby the technical criteria of the photographs must be taken into consideration (cf. 3.322.)

It must be noted that neither perimeter nor area background correlates clearly with V15.

The technical criteria (from a standing point of view, usually in a closed street situation) resulted in a systematic relationship between V15 (foreground) and V17 (middleground), while V19 (Area background) appeared only partially when sufficient depth and the view allowed it.

In general, the photographs can be characterized so that V15 (foreground) and V1 (constructions of all kinds) clearly correlate. This is not astonishing in a city with little green area.

It is now a question of correlating middle- and background in the same way.

V6            Area water

V6 (Area water) plays an important role. This variable is negatively correlated to V15 (Area foreground) but, on the other hand, positively correlated to V17 (Area middleground).

When water does appear it is usually of a depth that the border lies in the middle- or even in the background.

According to the height of the viewpoint of the photograph (that of a person on a flat surface, cf. it is natural that V3 (Areas open spaces + streets) correlates negatively with V6 (Area water).

V19 (Area background) and V20 (Perimeter background) are selfevident correlations. They do not need any further interpretation. This statement is valid also for the correlation between V8 (Area streets) and V9 (Area traffic, vehicles).

The strongly positive relationship between V4 (Area sky) and V21 (Photo-scene compositional value) has a partially tautologous character when the photographs have been made under the conditions of the technical criteria described in chapter 3.322.

In all the photographs presented the horizon plays an important role in determining the photo-scene compositional value. The smaller the sky proportion is, the larger the photo-scene compositional value.

The following presentations of the significant relationships indicating the trend are based on the STUDENT-distribution. This was chosen according to the the relatively small size of the sample (N = 41).

#### 4.212. The significance of intercorrelations

As long as we work with the Pearson-correlation coefficient and a constant sample, a distinction between the degree of significance and the strength of correlation is superfluous. One measure can be transformed into the other.

First, the closeness of correlation is not taken into consideration. The whole weight is put on the factor significance. Variables which correlate with less significance than others are looked upon as of less interest than variables which show more frequent and stronger significances.

The measure of significance reacts above all to the number of cases examined and to the amount of information present respectively.

For example, a correlation coefficient has to amount to .632 in the case of 10 units in order to be of significance on the 5 %-level, i.e. in order not to have come into existence at random with a probability of at least 95 %.

In the case of 41 units, this condition is met with  $r = .308$ , in the case of 80 units with  $r = .220$ .

From this point of view the demand arises to introduce into the interpretation, and especially into the factor analysis, only values with a high measure of significance.

For the calculation of the summary of significance (Sphere I only) we distinguish 3 levels of significance. They are weighted according to the usual distinctions:

TABLE 27

Weighting of significances

| <u>Random-Probability</u> | <u>Weights (Points)</u> | <u>Markation in the text</u> | <u>Symbol</u> |
|---------------------------|-------------------------|------------------------------|---------------|
| p greater than 10 %       | 0 P                     | not significant              |               |
| p 5.1 % to 10 %           | 1 P                     | weakly significant           | (figure)      |
| p 1.1 % to 5 %            | 2 P                     | significant                  | figure        |
| p 1.1 % to 1 %            | 3 P                     | very significant             | <u>figure</u> |

The summaries of significance in Sphere I, based on these assumptions, form the starting point of the procedure of selection.

Significant trends (positive or negative) exist thereby for the following relationships:

FIGURE 48

Trends for significant inter-correlations between photo-scene compositional variables

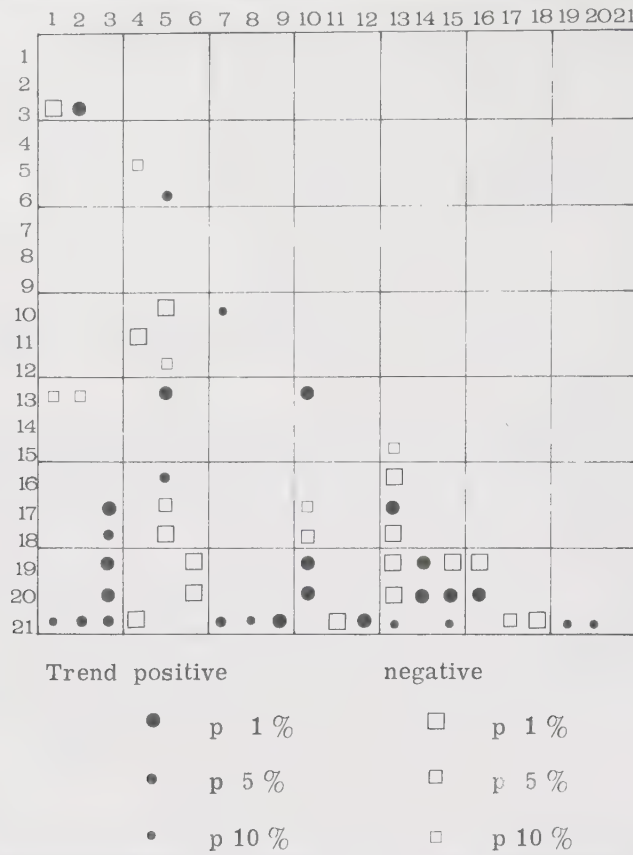


TABLE 28 Summaries of significance: photo-scene compositional variables

Summaries of significance: Photo-scene compositional variables

|     |                                                               |           |
|-----|---------------------------------------------------------------|-----------|
| V21 | Photo-scene compositional value                               | 30 Points |
| V13 | Area monuments, bridges, walls                                | 26        |
| V20 | Perimeter background                                          | 22        |
| V19 | Area background                                               | 22        |
| V3  | Areas open spaces + streets                                   | 19        |
| V5  | Area open spaces                                              | 17        |
| V10 | Area utilities                                                | 16        |
| V18 | Perimeter middleground                                        | 15        |
| V17 | Area middleground                                             | 13        |
| V16 | Perimeter foreground                                          | 11        |
| V15 | Area foreground                                               | 8         |
| V6  | Area water                                                    | 8         |
| V4  | Area sky                                                      | 7         |
| V2  | Areas housing + monuments, bridges, walls                     | 6         |
| V14 | Area persons                                                  | 6         |
| V11 | Area vegetation                                               | 6         |
| V1  | Areas housing + utilities + signs + monuments, bridges, walls | 5         |
| V12 | Area signs (traffic signs, advertising space, billboards)     | 4         |
| V7  | Area housing                                                  | 3         |
| V9  | Area traffic (vehicles)                                       | 3         |
| V8  | Area streets                                                  | 1         |

Double significance according to STUDENT's t

$$\hat{t} = |r_s| \cdot \sqrt{\frac{n-2}{1-r_s^2}}$$



#### 4.213. The principles of the choice of variables

The basic principle consists in including in the following steps of analysis such variables the relationships of which are as significant as possible among each other. The probability of later theoretical interpretation of pure random products can be reduced to a minimum by this procedure. The smaller the proportion of relationships of weak significance compared to relationships of significance, the bigger the security of registering really existent relationships in the empirical reality by means of the statistical method.

#### 4.214. The variables chosen

In the first factor analysis only those variables are introduced which show a high summary of significance.

The following nine variables are introduced according to the number of cases ( $N = 35$ , after 6 photographs had been excluded, cf. 4.42. ) and to the statistically given demand that this number of cases (number of units) should be larger than three times the number of variables (UEBERLA, 1968, p. 359):

|     |                                 |
|-----|---------------------------------|
| V3  | Areas open spaces + streets     |
| V5  | Area open spaces                |
| V10 | Area utilities                  |
| V13 | Area monuments, bridges, walls  |
| V17 | Area middleground               |
| V18 | Perimeter middleground          |
| V19 | Area background                 |
| V20 | Perimeter background            |
| V21 | Photo-scene compositional value |

It is the task of a procedure of selection, which is guided by theoretical considerations, to make this reduction possible (cf. 4.42.).

The following chapter will present the results of this first factor analysis.

4.22. Factor analysis

4.221. The first factor analysis

4.2211. The choice of the factors

FIGURE 49 Eigenvalues of the first correlation matrix (Scree test)

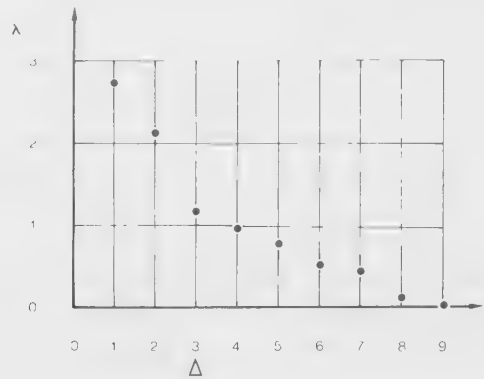
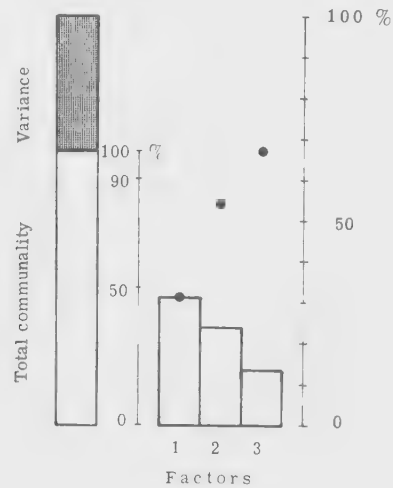


FIGURE 50 Proportion of variance with regard to the total communality and variance



Factor Analysis of the Sphere I (Pearson) matrix of photo-scene compositional variables is based on 35 pictures combined.

Varimax rotation of principal factors yields three factors with eigenvalues greater than unity, which together account for 0.67 of the total variance among the photo-scene compositional variables with high summaries of significance.

The range of variance among variable i.e. the total variance of a variable accounted for by the combination of all common factors is shown in the list of composition-communalities.

The variables differ substantially in the extent to which their variance is accounted for by all three factors combined. More than four-fifths of the variance is explained for V20 (perimeter background, 92.7%), V19 (Area background, 91.8%), V17 (Area middleground, 82.5%), all of which are concerned with the "depth" of a picture. At the opposite extreme, less than three fifths of the variance is explained for V10, V21, V13 and V5, all of which are concerned with physical (V21 with photo-scene compositional) aspects devoid of depth.

4.2212. The design of the factors

TABLE 29

Factor analysis of sphere I (photo-scene compositional) variable correlations between the nine most significant variables: Matrix variance on a Varimax rotation

| Factors                   | $\Sigma^2$ (factor loading) | Variance<br>Principal factor<br>component |
|---------------------------|-----------------------------|-------------------------------------------|
| 1                         | 2.71059                     | 30.1 %                                    |
| 2                         | 2.14638                     | 23.8                                      |
| 3                         | 1.17667                     | 13.1                                      |
| Sum of eigenvalues        | :                           | 6.03364                                   |
| Total cumulative variance | :                           | 67.0 %                                    |

TABLE 30

Factor analysis of sphere I (photo-scene compositional) variable correlations:  
Compositional variable communalities

| Photo-scene compositional variable |                                 | Communality |
|------------------------------------|---------------------------------|-------------|
| V20                                | Perimeter background            | 0.92667     |
| V19                                | Area background                 | 0.91838     |
| V17                                | Area middleground               | 0.82470     |
| V3                                 | Areas open spaces + streets     | 0.71479     |
| V18                                | Perimeter middleground          | 0.61967     |
| V10                                | Area utilities                  | 0.58723     |
| V21                                | Photo-scene compositional value | 0.53105     |
| V13                                | Area monuments, bridges, walls  | 0.52179     |
| V5                                 | Area open spaces                | 0.38936     |

TABLE 31

Factor analysis of sphere I (photo-scene compositional) variable correlations: Varimax components

Factor 1

|     |                                 |         |
|-----|---------------------------------|---------|
| V20 | Perimeter background            | 0.95965 |
| V19 | Area background                 | 0.95640 |
| V21 | Photo-scene compositional value | 0.39355 |
| V18 | Perimeter middleground          | 0.35948 |

Factor 2

|     |                                 |         |
|-----|---------------------------------|---------|
| V10 | Area utilities                  | 0.75489 |
| V21 | Photo-scene compositional value | 0.61247 |
| V3  | Areas open spaces + streets     | 0.42821 |

Factor 3

|     |                                |         |
|-----|--------------------------------|---------|
| V13 | Area monuments, bridges, walls | 0.72042 |
| V17 | Area middleground              | 0.54585 |

TABLE 32 Factorial complexities of sphere I variables

Factorial complexity = 1 Varimax components  
( $r > 0.30000$ )

Factor 1

|     |                        |       |
|-----|------------------------|-------|
| V20 | Perimeter background   | 0.960 |
| V19 | Area background        | 0.956 |
| V18 | Perimeter middleground | 0.359 |

Factor 2

|     |                             |       |
|-----|-----------------------------|-------|
| V10 | Area utilities              | 0.755 |
| V3  | Areas open spaces + streets | 0.428 |

Factor 3

|     |                                |       |
|-----|--------------------------------|-------|
| V13 | Area monuments, bridges, walls | 0.720 |
| V17 | Area middleground              | 0.546 |

Factorial complexity = 2

|     |                                                                                              |
|-----|----------------------------------------------------------------------------------------------|
| V21 | Photo-scene compositional value, with components on Factor 1 (0.394) and on Factor 2 (0.612) |
|-----|----------------------------------------------------------------------------------------------|



For replication of the findings, we use horizontal replication by including other variables from the same group.

This time, we understand the photograph sample - from the observer's point of view - as a universe. (In fact, the tourist is making his judgments on the basis of exactly 41 photographs which are characterized with an error probability of zero by the 21 photo-scene compositional variables).

Therefore, we include in a second run all 21 variables without paying respect to their summaries of significance.

The following section contains the results of this replication, starting with the reduction of the 21 variables to 6 factors:

TABLE 33      Eigenvalues of 21 correlated variables of sphere I

| Factor | Eigenvalue | Difference |
|--------|------------|------------|
| 1      | 7.797      | 4.919      |
| 2      | 2.878      | 0.361      |
| 3      | 2.517      | 0.362      |
| 4      | 2.155      | 0.517      |
| 5      | 1.638      | 0.499      |
| 6      | 1.139      | 0.233      |
| 7      | 0.906      | 0.167      |
| 8      | 0.739      | 0.084      |
| 9      | 0.655      | 0.242      |
| 10     | 0.413      | 0.035      |
| 11     | 0.378      | 0.081      |
| 12     | 0.297      | 0.123      |
| 13     | 0.174      |            |

---

For replication on the variable side, see GALTUNG, 1970, p. 441.

#### 4.222. The replicated factor analysis

##### 4.2221. The choice of the factors

FIGURE 51 Eigenvalues of the replicated correlation matrix (Scree test)

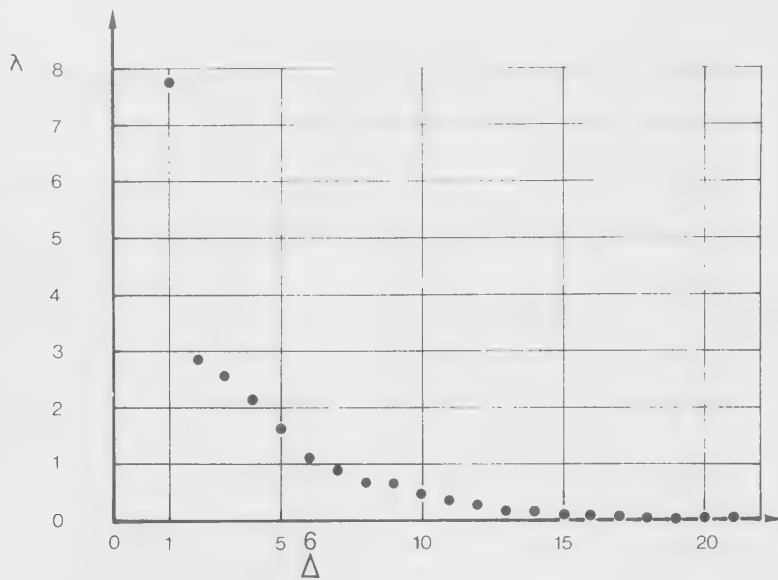
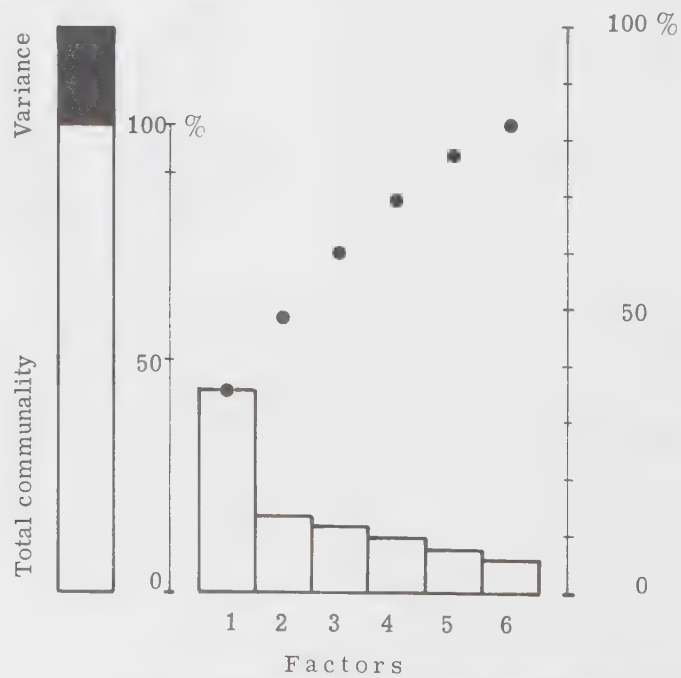


FIGURE 52 Proportion of variance with regard to the total communality and variance



4.2222. The design of the factors

TABLE 34

Factor analysis of sphere I (photo-compositional) variable correlations,  
Matrix variance on a Varimax rotation

| Factors | $\Sigma^2$ (factor loading) | Variance<br>Principal factor<br>component |
|---------|-----------------------------|-------------------------------------------|
| 1       | 7.79697                     | 35.4 %                                    |
| 2       | 2.87803                     | 13.1                                      |
| 3       | 2.51664                     | 11.4                                      |
| 4       | 2.15445                     | 9.8                                       |
| 5       | 1.63760                     | 7.4                                       |
| 6       | 1.13902                     | 5.2                                       |

Sum of eigenvalues : 18.12271

Total cumulative variance : 82.4 %

TABLE 35

Factor analysis of sphere I (photo-compositional) variable correlations:  
Compositional variable communalities

| Photo-compositional variable |                                                           | Communality |
|------------------------------|-----------------------------------------------------------|-------------|
| V1                           | Areas housing + utilities + signs + monuments, bridges    | 0.95957     |
| V15                          | Area foreground                                           | 0.94042     |
| V4                           | Area sky                                                  | 0.93461     |
| V2                           | Areas housing + monuments, bridges                        | 0.92856     |
| V11                          | Area vegetation                                           | 0.91918     |
| V7                           | Area housing                                              | 0.90777     |
| V17                          | Area middleground                                         | 0.89431     |
| V20                          | Perimeter background                                      | 0.87285     |
| V19                          | Area background                                           | 0.87126     |
| V3                           | Areas open spaces + streets                               | 0.86390     |
| V6                           | Area water                                                | 0.86268     |
| V14                          | Area persons                                              | 0.83726     |
| V13                          | Area monuments, bridges, walls                            | 0.80524     |
| V10                          | Area utilities                                            | 0.77499     |
| V5                           | Area open spaces                                          | 0.73775     |
| V8                           | Area streets                                              | 0.72391     |
| V21                          | Photo-scene compositional value                           | 0.71665     |
| V16                          | Perimeter foreground                                      | 0.71051     |
| V18                          | Perimeter middleground                                    | 0.68117     |
| V9                           | Area traffic (vehicles)                                   | 0.67711     |
| V12                          | Area signs (traffic signs, advertising space, billboards) | 0.59291     |

TABLE 36

Factor analysis of sphere I (photo-compositional) variable correlations: Varimax components

Factor 1

|     |                                 |         |
|-----|---------------------------------|---------|
| V3  | Areas open spaces and streets   | 0.86548 |
| V16 | Perimeter foreground            | 0.80236 |
| V15 | Area foreground                 | 0.76657 |
| V8  | Area streets                    | 0.65230 |
| V21 | Photo-scene compositional value | 0.47005 |
| V9  | Area traffic (vehicles)         | 0.44897 |

Factor 2

|     |                                                               |         |
|-----|---------------------------------------------------------------|---------|
| V2  | Areas housing + monuments, bridges, walls                     | 0.67522 |
| V1  | Areas housing + utilities + signs + monuments, bridges, walls | 0.58512 |
| V7  | Area housing                                                  | 0.52959 |
| V15 | Area foreground                                               | 0.45443 |
| V14 | Area persons                                                  | 0.36816 |

Factor 3

|     |                                                               |         |
|-----|---------------------------------------------------------------|---------|
| V7  | Area housing                                                  | 0.70583 |
| V9  | Area traffic (vehicles)                                       | 0.62079 |
| V1  | Areas housing + utilities + signs + monuments, bridges, walls | 0.57688 |
| V2  | Areas housing + monuments, bridges, walls                     | 0.54290 |
| V14 | Area persons                                                  | 0.46766 |

Factor 4

|     |                                 |         |
|-----|---------------------------------|---------|
| V19 | Area background                 | 0.91650 |
| V20 | Perimeter background            | 0.91032 |
| V21 | Photo-scene compositional value | 0.36594 |

Factor 5

|     |                                                               |         |
|-----|---------------------------------------------------------------|---------|
| V10 | Area utilities                                                | 0.85721 |
| V14 | Area persons                                                  | 0.68105 |
| V21 | Photo-scene compositional value                               | 0.40874 |
| V1  | Areas housing + utilities + signs + monuments, bridges, walls | 0.38251 |



### 4.3. Sphere II (physical-functional/visual-cultural) variables

#### 4.31. Description of the data: the correlation matrix, results and reduction

##### 4.311. The strength of intercorrelations

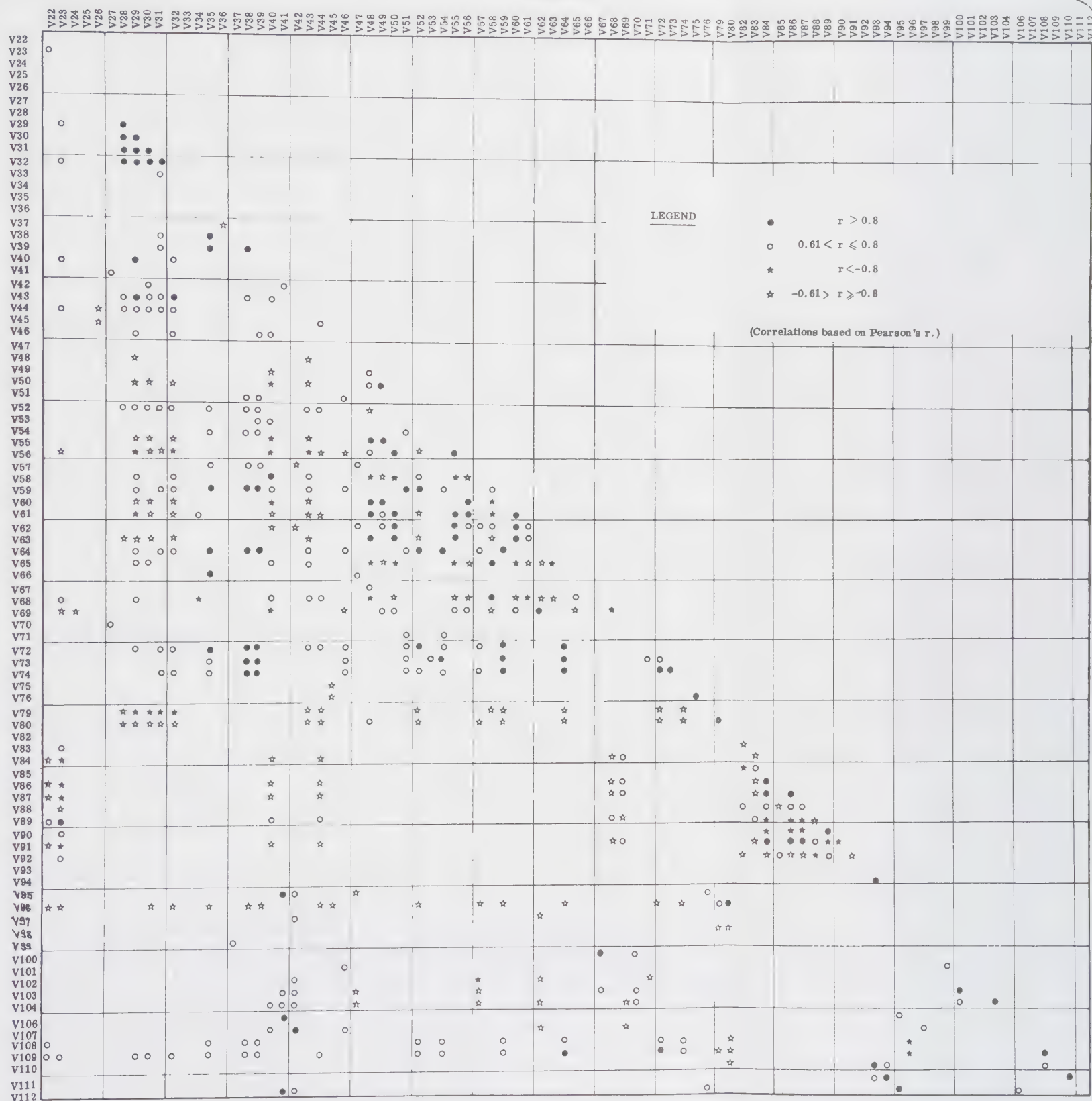


Figure 53 Correlation matrix for Sphere II variable-pairs: medium and close correlations



TABLE 36: Continued

Factor 6

|     |              |         |
|-----|--------------|---------|
| V14 | Area persons | 0.36234 |
|-----|--------------|---------|

TABLE 37

Factorial complexities of sphere I variables

Factorial complexity = 1

Varimax components  
(  $r > 0.30000$  )

Factor 1

|     |                               |       |
|-----|-------------------------------|-------|
| V3  | Areas open spaces and streets | 0.865 |
| V16 | Perimeter foreground          | 0.802 |
| V8  | Area streets                  | 0.652 |

Factor 2

none

Factor 3

none

Factor 4

|     |                      |       |
|-----|----------------------|-------|
| V19 | Area background      | 0.917 |
| V20 | Perimeter background | 0.910 |

Factor 5

|     |                |       |
|-----|----------------|-------|
| V10 | Area utilities | 0.857 |
|-----|----------------|-------|

Factor 6

none

Factorial complexity = 2

|     |                                                                                               |
|-----|-----------------------------------------------------------------------------------------------|
| V15 | Area foreground, with components Factor 1 (0.767) and Factor 2 (0.454)                        |
| V9  | Area traffic (vehicles) with components Factor 1 (0.449) and Factor 3 (0.621)                 |
| V2  | Areas housing + monuments, bridges etc. with components Factor 2 (0.675) and Factor 3 (0.543) |
| V7  | Area housing with components Factor 2 (0.530) and Factor 3 (0.706)                            |

Factorial complexity = 3

- |     |                                                                                                                                          |
|-----|------------------------------------------------------------------------------------------------------------------------------------------|
| V1  | Areas housing + utilities + signs + monuments, bridges, walls with components<br>Factor 2 (0.585), Factor 3 (0.577) and Factor 5 (0.383) |
| V21 | Photo-scene compositional value with components Factor 1 (0.470), Factor 4 (0.366) and<br>Factor 5 (0.409)                               |

Factorial complexity = 4

- |     |                                                                                                           |
|-----|-----------------------------------------------------------------------------------------------------------|
| V14 | Area persons with components Factor 2 (0.368), Factor 3 (0.467), Factor 5 (0.681) and<br>Factor 6 (0.362) |
|-----|-----------------------------------------------------------------------------------------------------------|



#### 4.312. The principles of the choice of variables

All variables of the universe are introduced into the principal components analysis. The main purpose of this is the reduction of the data to a few leading variables.

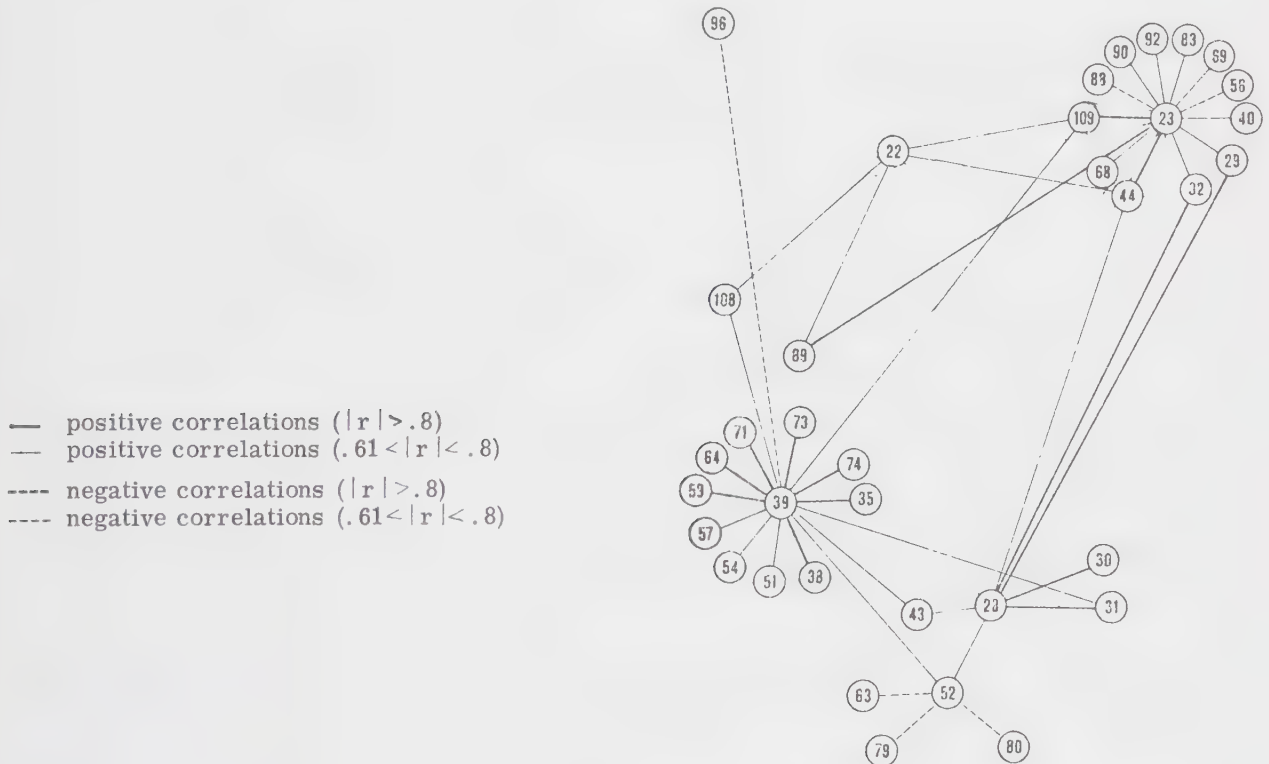
Hereby, we are more interested in variables with factorial complexities = 1 than in variables which, based on their factorial complexity greater than 1, must be assumed to be multidimensional.

In the following interpretation, the relationships between the data about Bangkok are represented graphically. It is a question of purely descriptive statistics. In a next step, tautologous relationships (between index-variables and their elementary variables) are eliminated.

Finally, only those variables remain for further analysis, whose

- (1) factorial complexity = 1, i.e. which are unidimensional, and
- (2) relationships to other variables are not tautologous.

FIGURE 54 Intercorrelations between Sphere II variables



There is no hypothesis which excludes certain variables in advance from the body of data available. All variables in the body of data are assumed to be suitable as potentially leading variables. This procedure is held to be meaningful since there are no reasons which might justify a selection of variables at this stage of the investigation. With the interpretation we follow the mechanical reduction and do not anticipate it.

4.313. The reduced correlation matrix: interpretation of substructures

TABLE 38 The reduced correlation matrix: substructures

|      |                                                                                    |                    |
|------|------------------------------------------------------------------------------------|--------------------|
| V39  | Green grocers and grocers, density                                                 | (16 relationships) |
| V23  | Housing density                                                                    | (13 relationships) |
| V28  | Food traders, density                                                              | ( 7 relationships) |
| V52  | New buildings built 1973/74:<br>4 - 6 stories                                      | ( 5 relationships) |
| V22  | Population density                                                                 | ( 4 relationships) |
| V109 | "Tourist information": Points of interest,<br>only Wat, palaces, stadiums, density | ( 3 relationships) |
| V44  | Job opportunities per parking space                                                | ( 3 relationships) |
| V29  | Traders (general), density                                                         | ( 2 relationships) |
| V31  | Food traders: municipal fees                                                       |                    |
| V32  | Traders, (general): municipal fees                                                 |                    |
| V43  | Parking space, density                                                             |                    |
| V108 | "Tourist information": Points of interest,<br>density                              |                    |
| V89  | Socio-economic status D, in % of total<br>population, per district                 |                    |

TABLE 39 The importance of V23 (Housing density)

| V23 Housing density                       |                                                                              |
|-------------------------------------------|------------------------------------------------------------------------------|
| positive correlation ( $ r  > .8$ )       |                                                                              |
| V89                                       | Socio-economic status D                                                      |
| V109                                      | "Tourist information":<br>Points of interest, only Wat,<br>palaces, stadiums |
| negative correlation ( $ r  > .8$ )       |                                                                              |
| V84                                       | Ethnic groups: Farang and "others"                                           |
| V86                                       | Socio-economic status A                                                      |
| V87                                       | Socio-economic status B                                                      |
| V91                                       | Car owners                                                                   |
| V96                                       | Area, per subdistrict                                                        |
| positive correlation ( $.61 <  r  < .8$ ) |                                                                              |
| V29                                       | Traders (general), density                                                   |
| V32                                       | Traders (general): municipal fees                                            |
| V40                                       | Travel agencies, density                                                     |
| V44                                       | Job opportunities per parking space                                          |
| V68                                       | New office buildings and banks built<br>1973/74                              |
| V83                                       | Ethnic groups: Chinese                                                       |
| V90                                       | Socio-economic status E                                                      |
| V92                                       | Owners of motorcycles and scooters                                           |
| negative correlation ( $.61 <  r  < .8$ ) |                                                                              |
| V56                                       | New buildings built 1973/74:<br>brick, concrete and wood mixed               |
| V69                                       | New warehouses built 1973/74                                                 |
| V88                                       | Socio-economic status C                                                      |

The relationship between V23 (Housing density) and V96 (Area, per subdistrict) is tautologous, since it calculated the housing density as number of houses per area of subdistrict. The selfevident appearance of this relationship will not, in future, be taken into consideration.

It is not astonishing that V89 (Socio-economic status D) correlates very closely with V23 (Housing density) , (cf. appendix 5).

On the other hand, it is interesting that a group of tourist points of interest lie in these densely built-up districts which means that the large majority of tourists (especially on their first stay in the town) on packages, i. e. on sightseeing tours (cf. 1.3312. ) visit the areas which are characterized by high housing densities.

We are particularly interested in the degree to which the complementary factors - precisely not these primary attractions - are registered when such areas are visited, and how faithfully such measured variables can be deduced from tourist responses.

Characteristic for Bangkok are the medium positive correlations between V23 and V40 (Travel agencies, density), V44 (Job opportunities per parking space), V68 (New office buildings and banks built 1973/74), and V83 (Ethnic groups: Chinese):

They show that services of every kind exist in the densely built-up areas. New office buildings and banks were built in already densely built-up areas, so that the number of job opportunities is high there.

The simultaneous high density of traders as well as the correlation of V90 (Socio-economic status E) make clear that these densely built-up areas are not city centers such as the western European tourist knows from his cities.

The result of the combination of these variables is a density of persons which is far higher than the density of the residential population of these "Chinese-type residence streets".

It is not astonishing that owners of motorcycles and scooters predominate in these areas for that is the only means of transportation which can be reasonably used.

Negatively correlated are "Ethnic groups: Farang<sup>1)</sup>". Farang usually live in pure compound type housing areas where socio-economic status A and socio-economic status B predominate. (see photographs no. 34 and 37).

Car owners (V 91) and socio-economic status C (V 88) also correlate negatively.

---

<sup>1)</sup> Farang = Foreigners with white skin (Europeans, Americans, Australians).



TABLE 40 The importance of V39 (Grocers and green grocers)

| V39 Grocers and green grocers, density     |                                                                                                                            |                                            |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|
| positive correlations ( $ r  > .8$ )       |                                                                                                                            |                                            |
| V35                                        | Markets, density                                                                                                           |                                            |
| V38                                        | Eating houses, street cafes, restaurants, density                                                                          |                                            |
| V59                                        | New buildings built 1973/74: brick and concrete, density                                                                   |                                            |
| V64                                        | New buildings built 1973/74: Residences within/above shops                                                                 |                                            |
| V71                                        | New buildings built 1973/74: other purposes than residence, shop, market, factory, office building, bank, warehouse, hotel |                                            |
| V73                                        | New buildings built 1974                                                                                                   |                                            |
| V74                                        | New buildings built 1973/74                                                                                                |                                            |
| positive correlations ( $.61 <  r  < .8$ ) |                                                                                                                            | negative correlations ( $.61 <  r  < .8$ ) |
| V31                                        | Food traders: municipal fees                                                                                               | V96 Area, per subdistrict                  |
| V43                                        | Parking space, density                                                                                                     |                                            |
| V51                                        | New buildings built 1973/74: 3, 3 1/2 stories                                                                              |                                            |
| V52                                        | New buildings built 1973/74: 4 - 6 stories                                                                                 |                                            |
| V54                                        | New buildings built 1973/74: brick and concrete                                                                            |                                            |
| V57                                        | New buildings built 1973/74: other construction materials than brick, concrete, wood                                       |                                            |
| V108                                       | "Tourist information": Points of interest, density                                                                         |                                            |
| V109                                       | "Tourist information": Points of interest, only Wat, palaces, stadiums                                                     |                                            |

V39            Grocers and green grocers, density

A distinct type of area is characterized by variables which represent functions serving every day living.

Markets, green grocers and general grocers as well as eating places of every kind correlate close.

Construction has been especially high in these areas in the last two years. More precisely it is a case of 3 - 3½ or 4 - 6 - story houses of brick and concrete.

V108 (Touristic points of interest) correlate closer with this type of area than with the type characterized by V23 (Housing density). This means that these areas as well are visited and potentially registered by tourists.

There are no distinct negative correlations with V39.

Further analysis will determine how different this area type is perceived as opposed to the first area type.

TABLE 41    The importance of V22 (Population density)

---

positive correlations ( $.61 < |r| < .8$ )

|      |                                                       |
|------|-------------------------------------------------------|
| V89  | Socio-economic status D                               |
| V108 | "Tourist information":<br>Points of interest, density |

---

It is to note that only two variables, V89 (Socio-economic status D: compare appendix 5) and V108 ("Tourist information": Points of interest, density) correlate to medium degree with population density and it is above all surprising that one is represented by touristic points of interest and not by commonly held indicators of "density".

Population density, then, seems not to be particularly adequate to convey meaning of "dense" (cf. RAPOPORT, 1975, who came to similar conclusions).

However, we hold the dimension of "density" for an important factor and therefore, the task is to find out more appropriate variables in order to elicit this dimension.

TABLE 42 The importance of V28 (Food traders)

|                                            | V28                                           | Food traders (density) |
|--------------------------------------------|-----------------------------------------------|------------------------|
| positive correlations ( $ r  > .8$ )       |                                               |                        |
| V29                                        | Traders (general), density                    |                        |
| V30                                        | Hairdressers and barbers, density             |                        |
| V31                                        | Food traders: municipal fees                  |                        |
| V32                                        | Traders (general): municipal fees             |                        |
| positive correlations ( $.61 <  r  < .8$ ) |                                               |                        |
| V43                                        | Parking space, density                        |                        |
| V44                                        | Job opportunities per parking space           |                        |
| V52                                        | New buildings built 1973/74:<br>4 - 6 stories |                        |

V28 gives information concerning the relationships between the area types excluded under

V28 (Food traders, density) is not directly correlated with V23 (Housing density). However, the correlations with V29 (Traders (general), density) and V32 (Traders: municipal fees) are very close. These correlate, on the other hand, with V23 (Housing density) to medium degree.

This simply means that V29 (Traders (general), density) appears in both types. The requirements of the residential population are, however, better satisfied in area type II:

- Hairdressers and barbers correlate closely with V28 (Food traders)
- Necessities of every day living are clearly available in type II.

It will be interesting to investigate how V82 (Ethnic groups: Thai) is related to type II.

#### 4.32. Factor analysis

##### 4.321. The choice of the factors

FIGURE 55 Eigenvalues of the correlation matrix (Scree test)



TABLE 43 Eigenvalues of sphere II (physical-functional) variables of the correlation matrix

Eigenvalues of 60 correlated variables of the correlation matrix

| Factor | Eigenvalue | Difference |
|--------|------------|------------|
| 1      | 18.860     |            |
| 2      | 12.620     | 6.240      |
| 3      | 7.808      | 4.812      |
| 4      | 5.081      | 2.727      |
| 5      | 3.601      | 1.480      |
| 6      | 3.203      | 0.398      |
| 7      | 2.466      | 0.737      |
| 8      | 2.120      | 0.346      |
| 9      | 1.107      | 1.106      |
| 10     | 0.912      | 0.102      |
| 11     | 0.736      | 0.176      |

#### Interpretation

The Table indicates no grouping which determines the number of factors to be rotated.

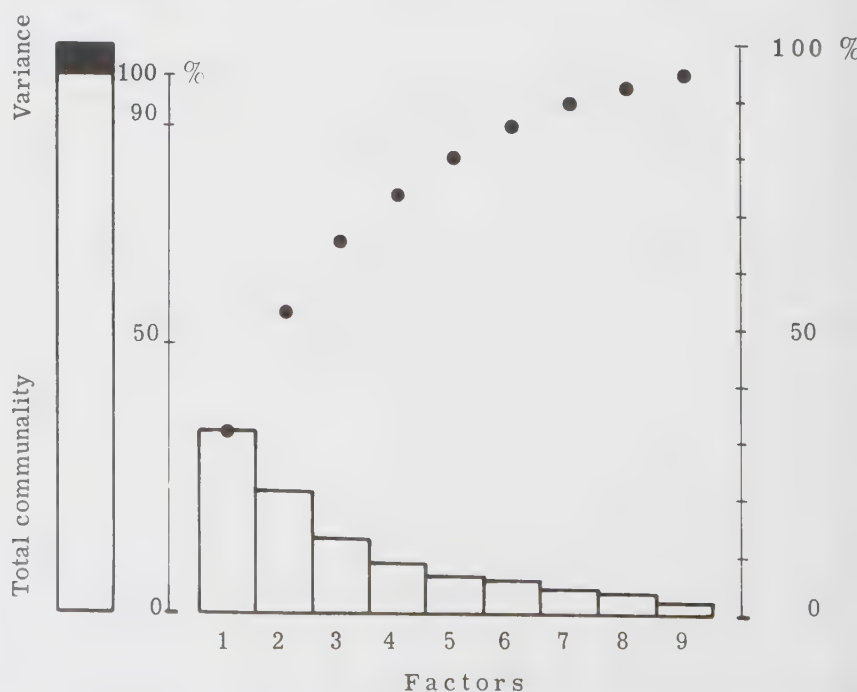
The transition from the eighth to the ninth factor attracts the most attention (cf. Table of differences), which could indicate a choice of nine factors.

In addition to this, the rule exists to stop the extraction of factors where the eigenvalue of a factor falls below 1 (i.e. also in the given case, after the ninth factor).

On the basis of the scree-test (see Fig. 55 ), the structure of the data, the rule concerning eigenvalues as well as the wish for the highest possible proportion of explained variance, we decide to extract nine factors.

FIGURE 56

Proportion of variance with regard to the total communality and variance





varimax rotation of principal factors yields nine factors with eigenvalues greater than unity, which together account for 0.945 of the total variance among all physical-functional variables (Table 44). The range of variance among variable-pairs is shown in the list of physical-functional communalities (Table 46).

The variables differ not substantially in the extent to which their variance is accounted for by all nine factors combined. More than four fifths of the variance is explained for 58 out of 60 variables included. Less than 80 % of the variance is explained for only two variables: V24 (Traffic desire) and V90 (Socio-economic status E).

TABLE 44 Proportion of variance

| Factor | Percentage of the total variance |             |
|--------|----------------------------------|-------------|
|        | individual                       | accumulated |
| 1      | 31.4 %                           | 31.4 %      |
| 2      | 21.0                             | 52.5        |
| 3      | 13.0                             | 65.5        |
| 4      | 8.5                              | 73.9        |
| 5      | 6.0                              | 80.0        |
| 6      | 5.3                              | 85.3        |
| 7      | 4.1                              | 89.4        |
| 8      | 3.5                              | 92.9        |
| 9      | 1.7                              | 94.6        |

TABLE 45 Factor analysis of sphere II (physical-functional) variable correlations; Matrix variance on a varimax rotation

Factor analysis of sphere II (physical and functional) variable correlations, all test persons:  
Matrix variance on a Varimax rotation

| Factors | $\Sigma^2$ (factor loading) | Variance<br>Principal factor<br>component |
|---------|-----------------------------|-------------------------------------------|
| 1       | 18.86005                    | 31.4 %                                    |
| 2       | 12.61966                    | 21.0                                      |
| 3       | 7.80816                     | 13.0                                      |
| 4       | 5.08097                     | 8.5                                       |
| 5       | 3.60127                     | 6.0                                       |
| 6       | 3.20260                     | 5.3                                       |
| 7       | 2.46577                     | 4.1                                       |
| 8       | 2.12008                     | 3.5                                       |
| 9       | 1.01389                     | 1.7                                       |

Sum of eigenvalues : 56.77245  
Total cumulative variance : 94.5 %

TABLE 46

Factor analysis of sphere II (physical and functional) variable correlations:

Physical/functional variable communalities

| Physical/functional variable |                                                                                                                            | Communality |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------|-------------|
| V64                          | New buildings built 1973/74: Residences within/above shops                                                                 | 0.99842     |
| V38                          | Eating houses, street cafes, restaurants (density)                                                                         | 0.99791     |
| V54                          | New buildings built 1973/74: brick and concrete                                                                            | 0.99783     |
| V39                          | Green grocers and grocers (density)                                                                                        | 0.99735     |
| V68                          | New office buildings and banks built 1973/74                                                                               | 0.99642     |
| V35                          | Markets (density)                                                                                                          | 0.99591     |
| V69                          | New warehouses built 1973/74                                                                                               | 0.99551     |
| V74                          | New buildings built 1973/74 (total)                                                                                        | 0.99518     |
| V63                          | New buildings built 1973/74: Residences                                                                                    | 0.99440     |
| V56                          | New buildings built 1973/74: brick, concrete and wood mixed                                                                | 0.99427     |
| V55                          | New buildings built 1973/74: wood                                                                                          | 0.99402     |
| V100                         | Total number of first class hotels                                                                                         | 0.99401     |
| V57                          | New buildings built 1973/74: construction materials other than brick, concrete, wood                                       | 0.99371     |
| V85                          | Ethnic groups: DK/NA                                                                                                       | 0.99341     |
| V66                          | New markets built 1973/74                                                                                                  | 0.99284     |
| V29                          | Traders (general) (density)                                                                                                | 0.99279     |
| V101                         | Total number of second class hotels                                                                                        | 0.99230     |
| V71                          | New buildings built 1973/74: other purposes than residence, shop, market, factory, office building, bank, warehouse, hotel | 0.99211     |
| V103                         | Total number of leading hotels                                                                                             | 0.99205     |
| V89                          | Socio-economic status D                                                                                                    | 0.99188     |
| V86                          | Socio-economic status A                                                                                                    | 0.99089     |
| V65                          | New buildings built 1973/74: shops                                                                                         | 0.99040     |
| V52                          | New buildings built 1973/74: 4 - 6 stories                                                                                 | 0.99030     |
| V67                          | New factories built 1973/74                                                                                                | 0.98976     |
| V30                          | Hairdressers and barbers (density)                                                                                         | 0.98894     |
| V91                          | Car owners                                                                                                                 | 0.98798     |
| V50                          | New buildings built 1973/74: 2, 2 1/2 stories                                                                              | 0.98661     |
| V28                          | Food traders (density)                                                                                                     | 0.98539     |
| V40                          | Travel agencies (density)                                                                                                  | 0.98434     |
| V51                          | New buildings built 1973/74: 3, 3 1/2 stories                                                                              | 0.98373     |
| V58                          | Ratio: total area per built-up area, year ending 1974                                                                      | 0.98359     |
| V70                          | New hotels built 1973/74                                                                                                   | 0.98343     |
| V84                          | Ethnic groups: Farang and "others"                                                                                         | 0.98279     |
| V53                          | New buildings built 1973/74: more than 6 stories                                                                           | 0.98003     |
| V87                          | Socio-economic status B                                                                                                    | 0.97462     |
| V110                         | "Tourist information": Points of interest (density)                                                                        | 0.97367     |
| V49                          | New buildings built 1973/74: 1, 1 1/2 stories                                                                              | 0.97094     |

Factor analysis of sphere II (physical and functional) variable correlations:  
Physical/functional variable communalities (Continued)

| Physical/functional variable |                                                    | Communality |
|------------------------------|----------------------------------------------------|-------------|
| V95                          | "Tourist information": Restaurants, bars           | 0.96289     |
| V27                          | Car density                                        | 0.95512     |
| V82                          | Ethnic groups: Thai                                | 0.95466     |
| V83                          | Ethnic groups: Chinese                             | 0.95308     |
| V112                         | "Tourist information": Restaurants, bars (density) | 0.94680     |
| V44                          | Job opportunities per parking space                | 0.94564     |
| V88                          | Socio-economic status C                            | 0.94244     |
| V93                          | "Tourist information": Points of interest          | 0.92596     |
| V94                          | "Tourist information": Wat, palaces, stadiums      | 0.92325     |
| V45                          | Population per parking space                       | 0.90471     |
| V23                          | Housing density                                    | 0.88551     |
| V25                          | Mobility in public transport                       | 0.88542     |
| V96                          | Area per subdistrict                               | 0.87851     |
| V111                         | "Tourist information": Wat, palaces, stadiums      | 0.86230     |
| V42                          | Service places                                     | 0.85433     |
| V43                          | Parking space                                      | 0.85393     |
| V26                          | Mobility in private vehicles                       | 0.85358     |
| V92                          | Owners of motorcycles and scooters                 | 0.84216     |
| V47                          | Ratio: Trip ends versus transfers                  | 0.81785     |
| V22                          | Population density                                 | 0.81317     |
| V41                          | Leading hotels                                     | 0.80286     |
| V24                          | Traffic desire                                     | 0.70206     |
| V90                          | Socio-economic status E                            | 0.68580     |

4.322. The design of the factors

Factor analysis of sphere II (physical and functional) variable correlations: Varimax components

TABLE 47

Factor 1

|      |                                                                                      |         |
|------|--------------------------------------------------------------------------------------|---------|
| V38  | Eating houses, street cafes, restaurants (density)                                   | 0.95917 |
| V64  | New buildings built 1973/74: Residences within/above shops                           | 0.94740 |
| V39  | Green grocers and grocers (density)                                                  | 0.92377 |
| V52  | New buildings built 1973/74: 4 - 6 stories                                           | 0.91173 |
| V35  | Markets (density)                                                                    | 0.88187 |
| V66  | New markets built 1973/74                                                            | 0.86998 |
| V74  | New buildings built 1973/74 (total)                                                  | 0.82510 |
| V57  | New buildings built 1973/74: construction materials other than brick, concrete, wood | 0.82067 |
| V110 | "Tourist information": Points of interest (density)                                  | 0.76151 |
| V101 | Total number of second class hotels                                                  | 0.75834 |
| V44  | Job opportunities per parking space                                                  | 0.70370 |
| V29  | Traders (general) (density)                                                          | 0.70349 |
| V111 | "Tourist information": Wat, palaces, stadiums                                        | 0.66923 |
| V28  | Food traders (density)                                                               | 0.66180 |
| V54  | New buildings built 1973/74: brick and concrete                                      | 0.64778 |
| V68  | New office buildings and banks built 1973/74                                         | 0.56437 |
| V43  | Parking space                                                                        | 0.50151 |
| V45  | Population per parking space                                                         | 0.45965 |
| V49  | New buildings built 1973/74: 1, 1 1/2 stories                                        | 0.44736 |
| V30  | Hairdressers and barbers (density)                                                   | 0.43182 |
| V53  | New buildings built 1973/74: more than 6 stories                                     | 0.39615 |
| V89  | Socio-economic status D                                                              | 0.35021 |
| V23  | Housing density                                                                      | 0.34169 |

Factor 2

|      |                                     |         |
|------|-------------------------------------|---------|
| V90  | Socio-economic status E             | 0.70983 |
| V89  | Socio-economic status D             | 0.61362 |
| V40  | Travel agencies (density)           | 0.53375 |
| V100 | Total number of first class hotels  | 0.50628 |
| V24  | Traffic desire                      | 0.48511 |
| V102 | Total number of service places      | 0.45499 |
| V44  | Job opportunities per parking space | 0.44850 |
| V101 | Total number of second class hotels | 0.42698 |
| V83  | Ethnic groups: Chinese              | 0.42230 |
| V23  | Housing density                     | 0.39432 |
| V65  | New buildings built 1973/74: Shops  | 0.38075 |
| V29  | Traders (general) (density)         | 0.37296 |



TABLE 47: Continued

Factor 2 (Continued)

|     |                                    |         |
|-----|------------------------------------|---------|
| V30 | Hairdressers and barbers (density) | 0.35446 |
| V45 | Population per parking space       | 0.32895 |
| V67 | New factories built 1973/74        | 0.32554 |

Factor 3

|      |                                                                                                                            |         |
|------|----------------------------------------------------------------------------------------------------------------------------|---------|
| V51  | New buildings built 1973/74: 3, 3½ stories                                                                                 | 0.88400 |
| V71  | New buildings built 1973/74: other purposes than residence, shop, market, factory, office building, bank, warehouse, hotel | 0.86097 |
| V70  | New hotels built 1973/74                                                                                                   | 0.82130 |
| V67  | New factories built 1973/74                                                                                                | 0.80371 |
| V40  | Travel agencies (density)                                                                                                  | 0.67623 |
| V103 | Total number of leading hotels                                                                                             | 0.65662 |
| V54  | New buildings built 1973/74: brick and concrete                                                                            | 0.64114 |
| V100 | Total number of first class hotels                                                                                         | 0.60468 |
| V74  | New buildings built 1973/74                                                                                                | 0.48568 |
| V63  | New buildings built 1973/74: Residences                                                                                    | 0.41625 |
| V27  | Car density                                                                                                                | 0.40633 |
| V30  | Hairdressers and barbers (density)                                                                                         | 0.38039 |
| V41  | Leading hotels                                                                                                             | 0.35502 |
| V112 | "Tourist information": Restaurants, bars (density)                                                                         | 0.32359 |
| V28  | Food traders (density)                                                                                                     | 0.31582 |

Factor 4

|     |                                                       |         |
|-----|-------------------------------------------------------|---------|
| V58 | Ratio: total area per built-up area, year ending 1974 | 0.80924 |
| V29 | Traders (general) (density)                           | 0.55812 |
| V30 | Hairdressers and barbers (density)                    | 0.55542 |
| V23 | Housing density                                       | 0.53467 |
| V43 | Parking space                                         | 0.49029 |
| V65 | New buildings built 1973/74: Shops                    | 0.48954 |
| V28 | Food traders (density)                                | 0.48784 |
| V70 | New hotels built 1973/74                              | 0.38078 |
| V52 | New buildings built 1973/74: 4 - 6 stories            | 0.31059 |

TABLE 47: Continued

Factor 5

|     |                                    |         |
|-----|------------------------------------|---------|
| V85 | Ethnic groups: DK/NA               | 0.95728 |
| V83 | Ethnic groups: Chinese             | 0.86645 |
| V92 | Owners of motorcycles and scooters | 0.53140 |

Factor 6

|     |                                                  |         |
|-----|--------------------------------------------------|---------|
| V53 | New buildings built 1973/74: more than 6 stories | 0.86486 |
| V92 | Owners of motorcycles and scooters               | 0.68745 |
| V89 | Socio-economic status D                          | 0.65111 |
| V65 | New buildings built 1973/74: Shops               | 0.62008 |
| V68 | New office buildings and banks built 1973/74     | 0.56845 |
| V23 | Housing density                                  | 0.44351 |
| V24 | Traffic desire                                   | 0.43581 |
| V30 | Hairdressers and barbers (density)               | 0.41028 |
| V27 | Car density                                      | 0.36382 |
| V28 | Food traders (density)                           | 0.35300 |
| V44 | Job opportunities per parking space              | 0.31901 |

Factor 7

|      |                                                     |         |
|------|-----------------------------------------------------|---------|
| V93  | "Tourist information": Points of interest           | 0.83343 |
| V42  | Service places                                      | 0.82857 |
| V94  | "Tourist information": Wat, palaces, stadiums       | 0.63361 |
| V26  | Mobility in private vehicles                        | 0.62128 |
| V41  | Leading hotels                                      | 0.45333 |
| V27  | Car density                                         | 0.40830 |
| V96  | Area subdistrict                                    | 0.40087 |
| V110 | "Tourist information": Points of interest (density) | 0.30018 |

Factor 8

|      |                                                    |         |
|------|----------------------------------------------------|---------|
| V112 | "Tourist information": Restaurants, bars (density) | 0.88832 |
| V95  | "Tourist information": Restaurants, bars           | 0.83131 |
| V94  | "Tourist information": Wat, palaces, stadiums      | 0.55739 |
| V96  | Area subdistrict                                   | 0.54300 |
| V70  | New hotels built 1973/74                           | 0.33111 |
| V26  | Mobility in private vehicles                       | 0.30920 |

Factor 9

|     |                  |         |
|-----|------------------|---------|
| V27 | Car density      | 0.34343 |
| V24 | Traffic desire   | 0.32779 |
| V96 | Area subdistrict | 0.31960 |

All terms shown are positively loaded ( $r > 0.30000$ ).

TABLE 48 Factorial complexities = 1, Sphere II variables

Factorial complexity = 1

Varimax components  
( $r > 0.30000$ )

Factor 1

|      |                                                                                      |       |
|------|--------------------------------------------------------------------------------------|-------|
| V38  | Eating houses, street cafes, restaurants (density)                                   | 0.959 |
| V64  | New buildings built 1973/74: Residences within/above shops                           | 0.947 |
| V39  | Green grocers and grocers (density)                                                  | 0.924 |
| V52  | New buildings built 1973/74: 4 - 6 stories                                           | 0.912 |
| V35  | Markets (density)                                                                    | 0.882 |
| V66  | New markets built 1973/74                                                            | 0.870 |
| V74  | New buildings built 1973/74 (total)                                                  | 0.825 |
| V57  | New buildings built 1973/74: construction materials other than brick, concrete, wood | 0.821 |
| V111 | "Tourist information": Points of interest (density)                                  | 0.762 |
| V49  | New buildings built 1973/74: 1, 1 1/2 stories                                        | 0.447 |

Factor 2

|     |                         |       |
|-----|-------------------------|-------|
| V90 | Socio-economic status E | 0.710 |
|-----|-------------------------|-------|

Factor 3

|     |                                                                                                                            |       |
|-----|----------------------------------------------------------------------------------------------------------------------------|-------|
| V51 | New buildings built 1973/74: 3, 3 1/2 stories                                                                              | 0.884 |
| V71 | New buildings built 1973/74: other purposes than residence, shop, market, factory, office building, bank, warehouse, hotel | 0.861 |
| V63 | New buildings built 1973/74: Residences                                                                                    | 0.416 |

Factor 4

|     |                                                       |       |
|-----|-------------------------------------------------------|-------|
| V58 | Ratio: total area per built-up area, year ending 1974 | 0.809 |
|-----|-------------------------------------------------------|-------|

Factor 5

|     |                      |       |
|-----|----------------------|-------|
| V85 | Ethnic groups: DK/NA | 0.957 |
|-----|----------------------|-------|

Factor 6

|     |                                    |       |
|-----|------------------------------------|-------|
| V92 | Owners of motorcycles and scooters | 0.687 |
|-----|------------------------------------|-------|

Factor 7

|     |                                           |       |
|-----|-------------------------------------------|-------|
| V93 | "Tourist information": Points of interest | 0.833 |
| V42 | Service places                            | 0.829 |

Factor 8

|     |                                          |       |
|-----|------------------------------------------|-------|
| V95 | "Tourist information": Restaurants, bars | 0.831 |
| V26 | Mobility in private vehicles             | 0.309 |

Factor 9

none

#### 4.4. Multiple regression analysis

##### 4.41. Introduction

The following discussion emphasizes the results of the multiple regression analysis which was chosen to be an adequate statistical method.

The number of the variables to be considered is determined in accordance with the purpose of the analysis. Thereby one must take into consideration that this selection from the body of data is subject to certain limitations.

In the given case the reduction of variables took place before the multiple regression analysis according to the criteria mentioned in the discussion of methodology under 3.5.  
(cf. also appendix 7/8).

The multiple regression analysis is discussed in the following with respect to the variables mentioned.

We are striving for the highest possible proportion of explained variance. The stepwise multiple regression method of analysis was applied.

It can, however, be used and interpreted with caution only for the following reasons:

The stepwise procedure is frequently used in order to select from the total number of predictors a smaller number of the strongest possible predictors.

Those predictors are not considered relevant which do not add anything of significance to the variance explained by the previous predictors. With this kind of selection which is based on the succession of predictors there is, however, no guarantee that the strongest possible predictors have actually been chosen with this number.

This can be the case when the strongest possible partial number of predictor variables does not contain the predictor variable with the highest simple correlation to the criterium.

On the other hand, in most cases, the best group of predictors is usually attained by the stepwise procedure of selection described. If another combination of predictors should actually once lead to a better prediction, the difference is generally very slight.

It must be pointed out, moreover, that the sample errors can influence the results to an extremely high degree in such stepwise solutions and the predictor selections which depend on them. This problem can, however, be overlooked when the size N of the sample is large and the sample for the universe is very representative.

For a detailed description of multiple regression analysis, especially with regard to appendix 8, we refer to theoretical abstracts, e.g. DRAPER and SMITH, 1966, DANIEL and WOOD, 1971, KIM and KOHOUT, 1975, GAENSSLEN and SCHUBOE, 1973.



#### 4.42. The predictors

The main problem is to reduce the number of variables in such a way that the least possible amount of information becomes lost.

In order to avoid working with the large correlation matrices we present the chosen variables in the following section.

The calculation of factor values from the leading variables alone seems to be advantageous for various reasons. For economical reasons, factor values can be deduced from leading variables only because of the usual high degree of correspondence between factors from leading variables and factors from the linear combination of all variables. Furthermore, a factor which will be considered for later investigation will be measured only by a collection of leading variables, if at all possible.

Calculations of factor values from leading variables are moreover appropriate for removing orthogonality which is sometimes found to be artificial. Thus, they provide a substitution for oblique rotation (cf. GAENSSLEN, SCHUBOE, 1973).

The following 3 (6 in the replication) respectively 9 variables (for Sphere I respectively Sphere II) are now used as surrogates for the 3 (6) respectively 9 basic dimensions in order to construct the initial multiple regression equations:

Sphere I: V20, V10, V13

Replication: V3, V14, V7, V19, V10, V13

Sphere II: V64, V90, V51, V58, V83, V 53, V42, V112, V47

In the equations, the Extents of Agreement are said to be a function of two orthogonal dimensions.

On the basis of purely mechanically computed variables, the following Sphere II variables seem predestined to replace the factors as so-called leading variables. Prerequisite is their factorial complexity which must equal 1:

Factor 1 : V38 which is replaced on the basis of theoretical considerations by V64 (cf. app. 7)

Factor 2 : V90

Factor 3 : V51

Factor 4 : V58

Factor 5 : V85 which is replaced on the basis of theoretical considerations by V83 (cf. app. 7)

Factor 6 : V92 which is replaced on the basis of theoretical considerations by V53 (cf. app. 7)

Factor 7 : V93 which is replaced on the basis of theoretical considerations by V42 (cf. app. 7)

Factor 8 : V95 which is replaced on the basis of theoretical considerations by V112 (cf. app. 7)

Factor 9 : none; V47 is chosen on the basis of theoretical considerations.

The variances of the variables accounted for by the factor for which the variables were taken as so-called leading variables, in %:

TABLE 49 The predictors

| Sphere I predictors  |          |          |          |          |          |          |          |          |          |  |
|----------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--|
|                      | Factor 1 | Factor 2 | Factor 3 |          |          |          |          |          |          |  |
| V20                  | 92.1 %   |          |          |          |          |          |          |          |          |  |
| V10                  |          | 57.0 %   |          |          |          |          |          |          |          |  |
| V13                  |          |          | 51.9 %   |          |          |          |          |          |          |  |
| Replication          |          |          |          |          |          |          |          |          |          |  |
|                      | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 | Factor 6 |          |          |          |  |
| V3                   | 74.9 %   |          |          |          |          |          |          |          |          |  |
| V14                  |          | 13.6 %   |          |          |          |          |          |          |          |  |
| V7                   |          |          | 49.8 %   |          |          |          |          |          |          |  |
| V19                  |          |          |          | 84.0 %   |          |          |          |          |          |  |
| V10                  |          |          |          |          | 73.5 %   |          |          |          |          |  |
| V13                  |          |          |          |          |          | 8.0 %    |          |          |          |  |
| Sphere II predictors |          |          |          |          |          |          |          |          |          |  |
|                      | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 | Factor 6 | Factor 7 | Factor 8 | Factor 9 |  |
| V64                  | 89.8 %   |          |          |          |          |          |          |          |          |  |
| V90                  |          | 50.4 %   |          |          |          |          |          |          |          |  |
| V51                  |          |          | 78.2 %   |          |          |          |          |          |          |  |
| V58                  |          |          |          | 65.5 %   |          |          |          |          |          |  |
| V83                  |          |          |          |          | 75.1 %   |          |          |          |          |  |
| V53                  |          |          |          |          |          | 74.8 %   |          |          |          |  |
| V42                  |          |          |          |          |          |          | 68.7 %   |          |          |  |
| V112                 |          |          |          |          |          |          |          | 78.9 %   |          |  |
| V47                  |          |          |          |          |          |          |          |          |          |  |

cf. Tab. 49

#### 4.43. The criteria

TABLE 50

The criteria

(Definition EoA: see p. 77)

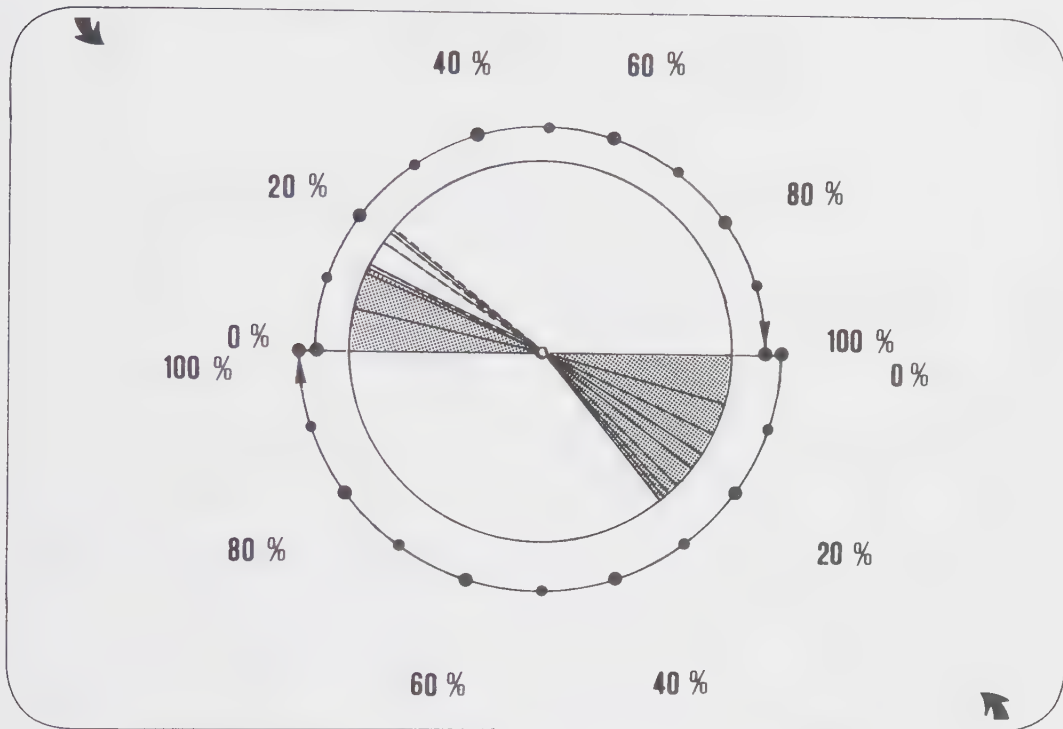
|        |   |                                                                   |
|--------|---|-------------------------------------------------------------------|
| EoA 1  | : | "Central areas within the townscape"                              |
| EoA 2  | : | "For certain in Bangkok"                                          |
| EoA 3  | : | "Borderlines and distinct areas within the townscape"             |
| EoA 4  | : | "Intensively used areas within the townscape"                     |
| EoA 5  | : | "Uniform areas within the townscape"                              |
| EoA 6  | : | "For certain not in Bangkok"                                      |
| EoA 7  | : | "Perhaps in Bangkok"                                              |
| EoA 8  | : | "Interesting, beautiful, agreeable, valuable subjects"            |
| EoA 9  | : | "Subjects helpful to orientation"                                 |
| EoA 10 | : | "Typical features of Bangkok"                                     |
| EoA 11 | : | "Areas which are preferably visited"                              |
| EoA 12 | : | "Areas which are negatively recommended, i. e. not to visit them" |

#### 4.44. The results

FIGURE 57:

Extent of agreement on the evaluation of parts of the simulated townscape with respect to representations of "central areas within the townscape": <sup>1)</sup>

LINK PREDICTORS: leading photo-scene compositional variables of varimax rotated factors, see 4.42.  
 ----- Replication (see 4.222.)



REAL WORLD PREDICTORS: leading physical-functional variables of varimax rotated factors, see 4.42.

The R square changes (i.e. the squared semipartial correlation coefficient changes) from step to step are represented, as a percentage of the overall variance explained.

Squared semipartial correlation coefficient: 
$$r_{y(1.2)}^2 = \frac{(r_{y1} - r_{y2}r_{12})^2}{1 - r_{12}^2}$$

<sup>1)</sup> Questionnaire: see appendix 6, pp. 39-40.

- (1) Sphere I predictors : no significant relationships
- (2) Sphere I (replication) : no significant relationships
- (3) Sphere II predictors : Factor 2

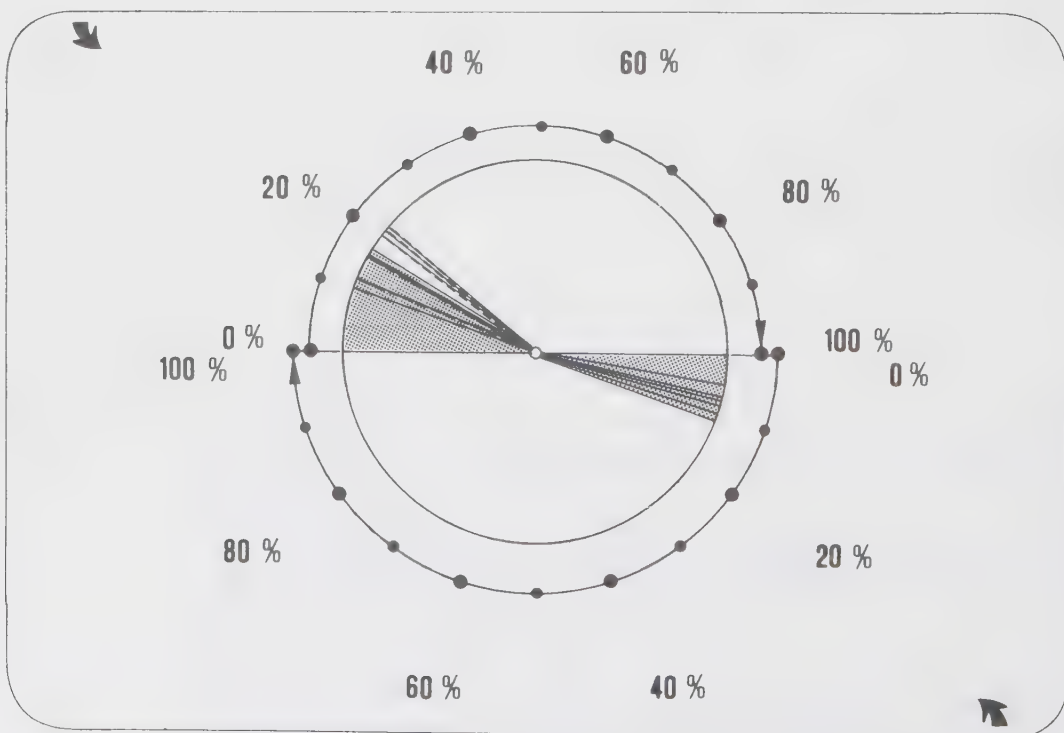
|          |                                               | % of variance of variable explained by Factor |
|----------|-----------------------------------------------|-----------------------------------------------|
| - V90    | Socio-economic status E                       | 50.4 %                                        |
| - V89    | Socio-economic status D                       | 37.7                                          |
| - V40    | Travel agencies (density)                     | 28.5                                          |
| - V100   | First class hotels                            | 25.6                                          |
| Factor 8 |                                               |                                               |
| - V112   | "Tourist information": Restaurants, bars      | 78.9 %                                        |
| - V94    | "Tourist information": Wat, palaces, stadiums | 31.1                                          |

FIGURE 58:

Extent of agreement on the evaluation of parts of the simulated townscape with respect to representations "taken for certain in Bangkok":

LINK PREDICTORS: leading photo-scene compositional variables of varimax rotated factors, see 4.42.

----- Replication (see 4.222.)



REAL WORLD PREDICTORS: leading physical-functional variables of varimax rotated factors, see 4.42.



(1) Sphere I predictors

: Factor 3

% of variance  
of variable  
explained by  
Factor

- V13 Area monuments, bridges, walls 51.8 %  
- V17 Area middleground 29.8

(2) Sphere I  
(replication)

: no significant relationships

(3) Sphere II predictors

: Factor 2

- V90 Socio-economic status E 50.4 %  
- V89 Socio-economic status D 37.7  
- V40 Travel agencies (density) 28.5  
- V100 First class hotels 25.6

Factor 7

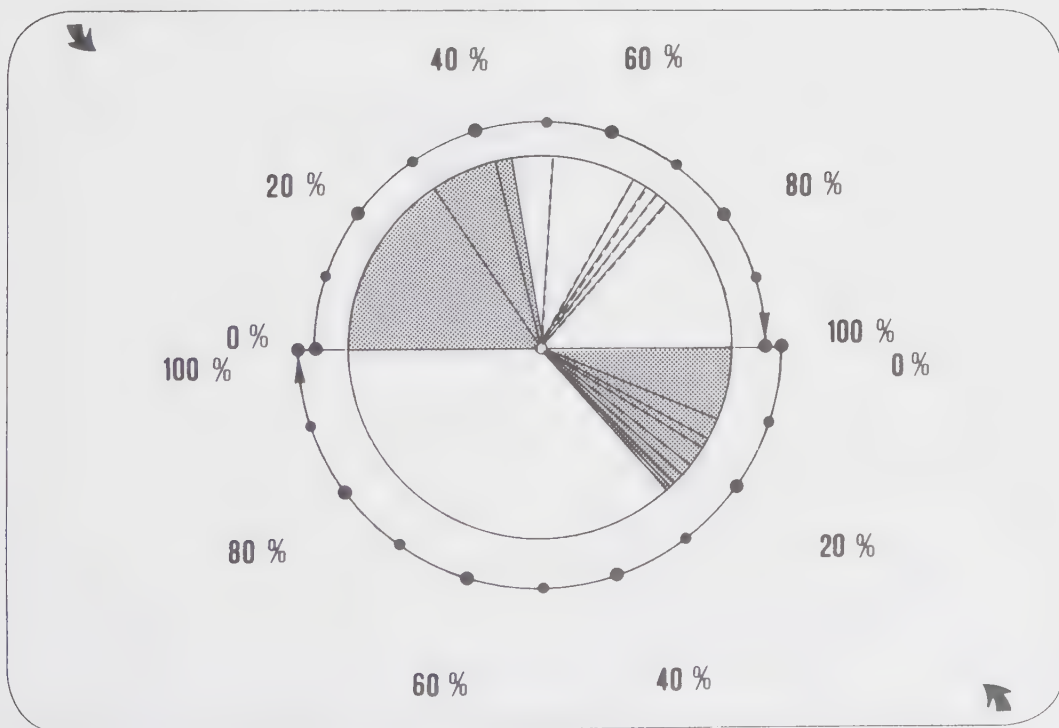
- V93 "Tourist information": Points of interest 69.5 %  
- V42 Service places 68.6  
- V94 "Tourist information": Wat, palaces, stadiums 40.1

FIGURE 59:

Extent of agreement on the evaluation of parts of the simulated townscape with respect to representations of "borderlines and distinct areas within the townscape":

LINK PREDICTORS: leading photo-scene compositional variables of varimax rotated factors, see 4.42.

----- Replication (see 4.222.)



REAL WORLD PREDICTORS: leading physical-functional variables of varimax rotated factors, see 4.42.

(1) Sphere I predictors

: Factor 3

% of variance  
of variable  
explained by  
Factor

- V13 Area monuments, bridges, walls 51.8 %
- V17 Area middleground 29.8

Factor 2

- V10 Area utilities 57.0 %
- V21 Photo-scene compositional value 37.5

(2) Sphere I predictors  
(replication)

: Factor 3

- V7 Area housing 49.8 %
- V9 Area traffic (vehicles) 38.5
- V1 Areas housing + utilities + signs +  
monuments, bridges, walls 33.3

Factor 1

- V3 Areas open spaces + streets 74.9 %
- V16 Perimeter foreground 64.4
- V15 Area foreground 58.8
- V8 Area streets 42.6

(3) Sphere II predictors

: Factor 2

- V90 Socio-economic status E 50.4 %
- V89 Socio-economic status D 37.7
- V40 Travel agencies (density) 28.5
- V100 First class hotels 25.6

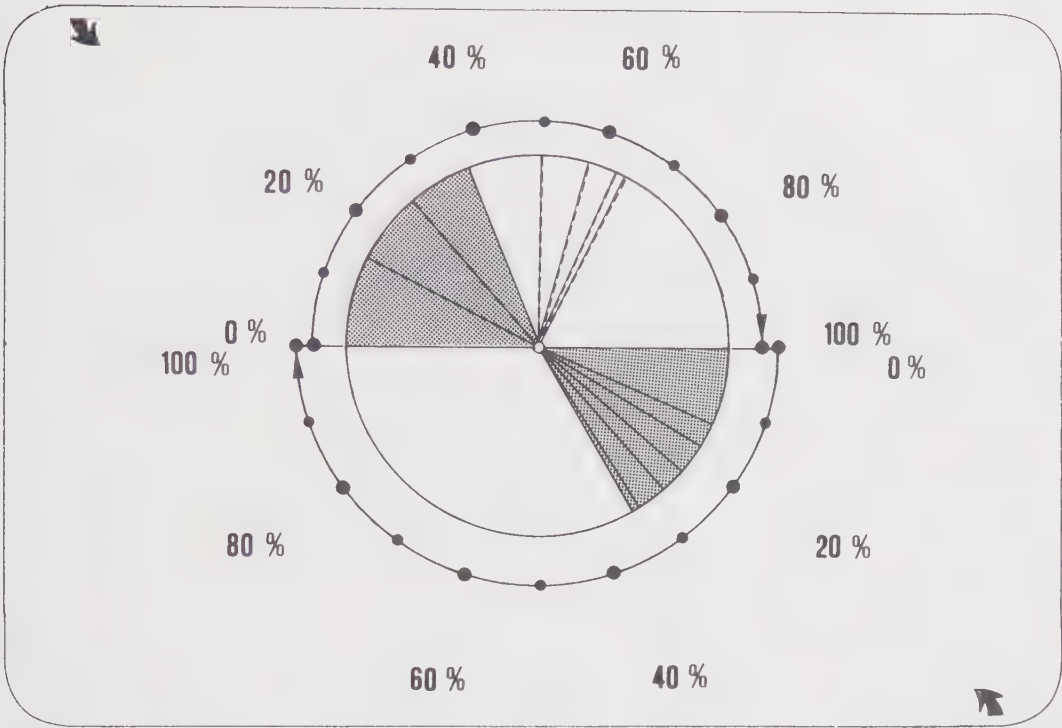
Factor 7

- V93 "Tourist information": Points of interest 69.5 %
- V42 Service places 68.6
- V94 "Tourist information": Wat, palaces,  
stadiums 40.1

FIGURE 60:

Extent of agreement on the evaluation of parts of the simulated townscape with respect to representations of "intensively used areas within the townscape":

LINK PREDICTORS: leading photo-scene compositional variables of varimax rotated factors, see 4.42.  
----- Replication (see 4.222.)



REAL WORLD PREDICTORS: leading physical-functional variables of varimax rotated factors, see 4.42.

(1) Sphere I predictors

: Factor 2

% of variance  
of variable  
explained by  
Factor

- V10 Area utilities 57.0 %
- V21 Photo-scene compositional value 37.5

Factor 3

- V13 Area monuments, bridges, walls 51.8 %
- V17 Area middleground 29.8

Factor 1

- V20 Perimeter background 92.1 %
- V19 Area background 91.5

(2) Sphere I predictors  
(replication)

: Factor 3

- V7 Area housing 49.8 %
- V9 Area traffic (vehicles) 38.5
- V1 Areas housing + utilities + signs +  
monuments, bridges, walls 33.3

Factor 5

- V10 Area utilities 73.5 %
- V14 Area persons 46.4

(3) Sphere II predictors

: Factor 2

- V90 Socio-economic status E 50.4 %
- V89 Socio-economic status D 37.7
- V40 Travel agencies (density) 28.5
- V100 First class hotels 25.6

Factor 4

- V58 Ratio: total area per built-up area, year  
ending 1974 65.5 %
- V29 Traders (general) (density) 31.1
- V30 Hairdressers and barbers (density) 30.8
- V23 Housing density 28.6

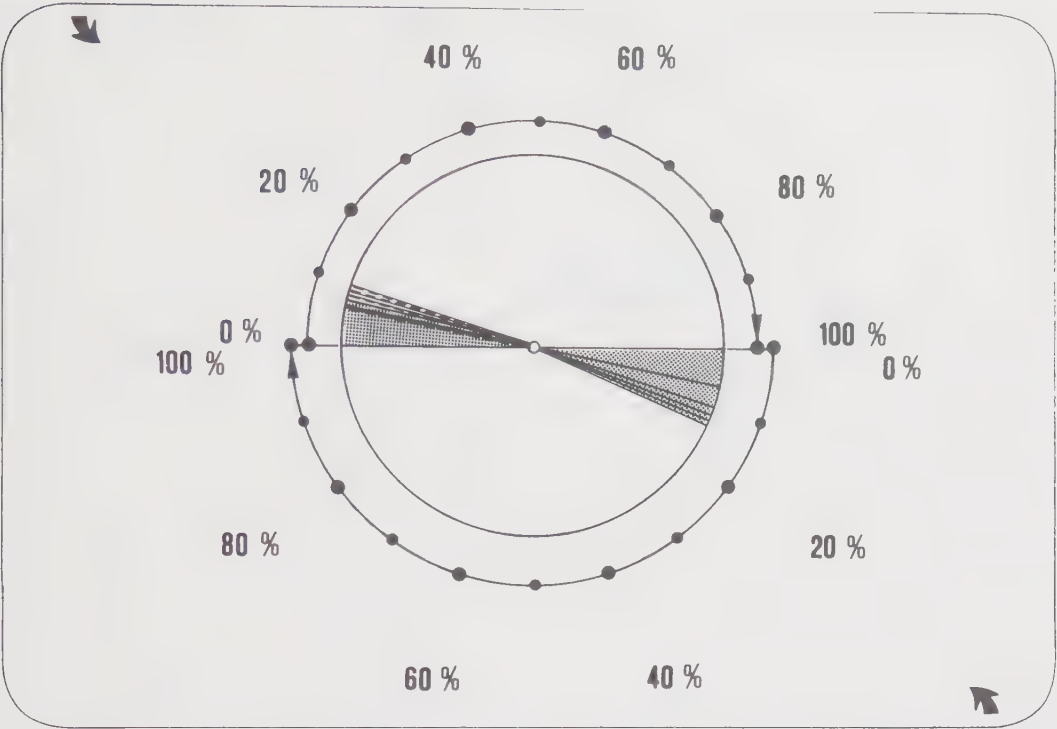


FIGURE 61:

Extent of agreement on the evaluation of parts of the simulated townscape with respect to representations of "uniform areas within the townscape";

LINK PREDICTORS: leading photo-scene compositional variables of varimax rotated factors, see 4.42.

----- Replication (see 4.222.)



REAL WORLD PREDICTORS: leading physical-functional variables of varimax rotated factors, see 4.42.

- (1) Sphere I predictors : no significant relationships
- (2) Sphere I predictors (replication) : no significant relationships
- (3) Sphere II predictors : Factor 8

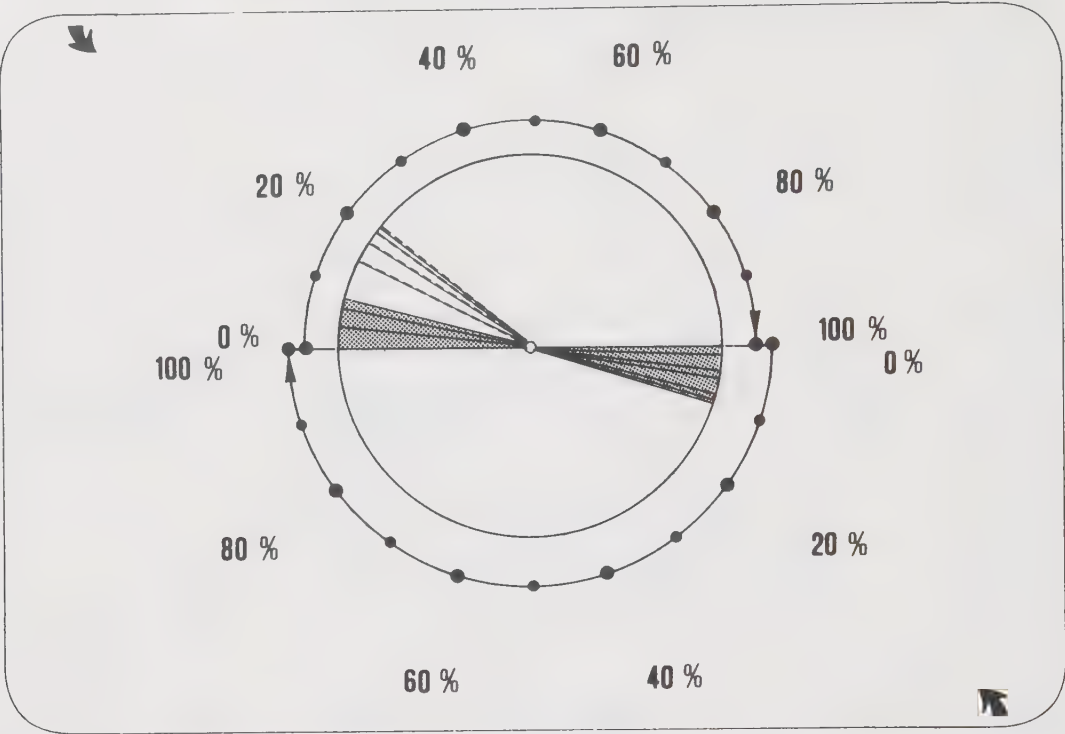
|          |                                               | % of variance of variable explained by Factor |
|----------|-----------------------------------------------|-----------------------------------------------|
| - V112   | "Tourist information": Restaurants, bars      | 78.9 %                                        |
| - V94    | "Tourist information": Wat, palaces, stadiums | 31.1                                          |
| Factor 9 |                                               |                                               |
| - V27    | Car density                                   | 11.8 %                                        |

FIGURE 62:

Extent of agreement on the evaluation of parts of the simulated townscape with respect to representations "taken for certain not in Bangkok":

LINK PREDICTORS: leading photo-scene compositional variables of varimax rotated factors, see 4.42.

----- Replication (see 4.222.)



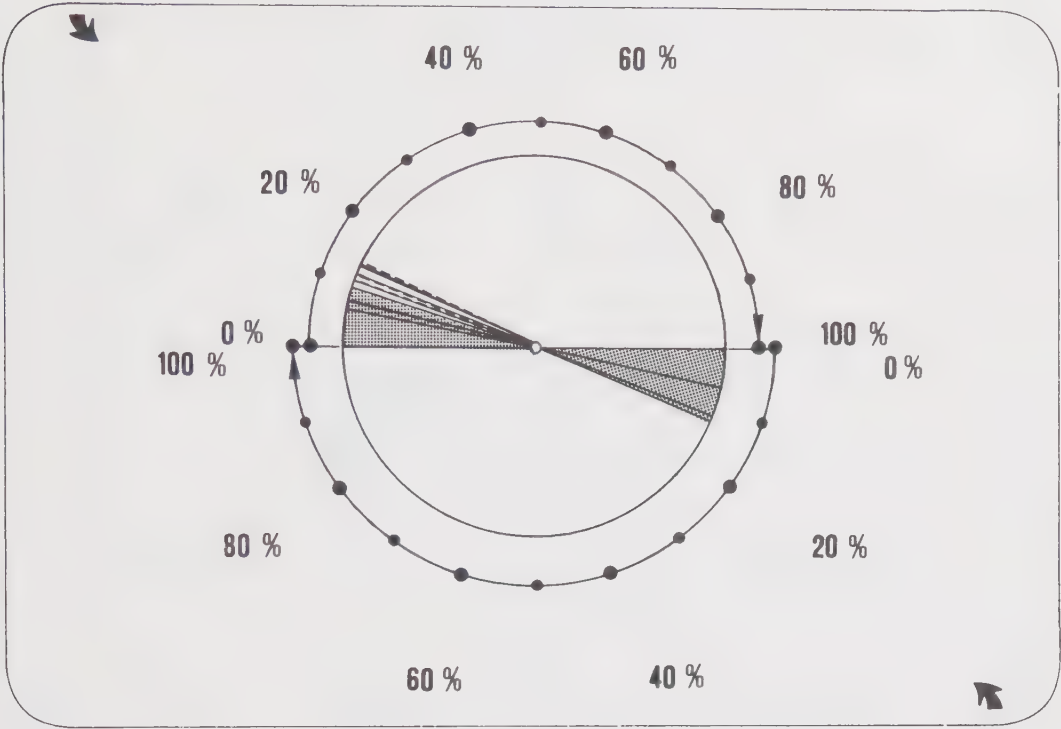
REAL WORLD PREDICTORS: leading physical-functional variables of varimax rotated factors, see 4.42.

- (1) Sphere I predictors : no significant relationships
- (2) Sphere I predictors (replication) : no significant relationships
- (3) Sphere II predictors : Factor 2

|          |                                    |  | % of variance of variable explained by Factor |
|----------|------------------------------------|--|-----------------------------------------------|
| - V90    | Socio-economic status E            |  | 50.4 %                                        |
| - V89    | Socio-economic status D            |  | 37.7                                          |
| - V40    | Travel agencies (density)          |  | 28.5                                          |
| - V100   | First class hotels                 |  | 25.6                                          |
| Factor 5 |                                    |  |                                               |
| - V85    | Ethnic groups: DK/NA               |  | 91.6 %                                        |
| - V83    | Ethnic groups: Chinese             |  | 75.1                                          |
| - V92    | Owners of motorcycles and scooters |  | 28.2                                          |

FIGURE 63:  
Extent of agreement on the evaluation of parts of the simulated townscape with respect to representations "perhaps taken in Bangkok":

LINK PREDICTORS: leading photo-scene compositional variables of varimax rotated factors, see 4.42.  
----- Replication (see 4.222.)



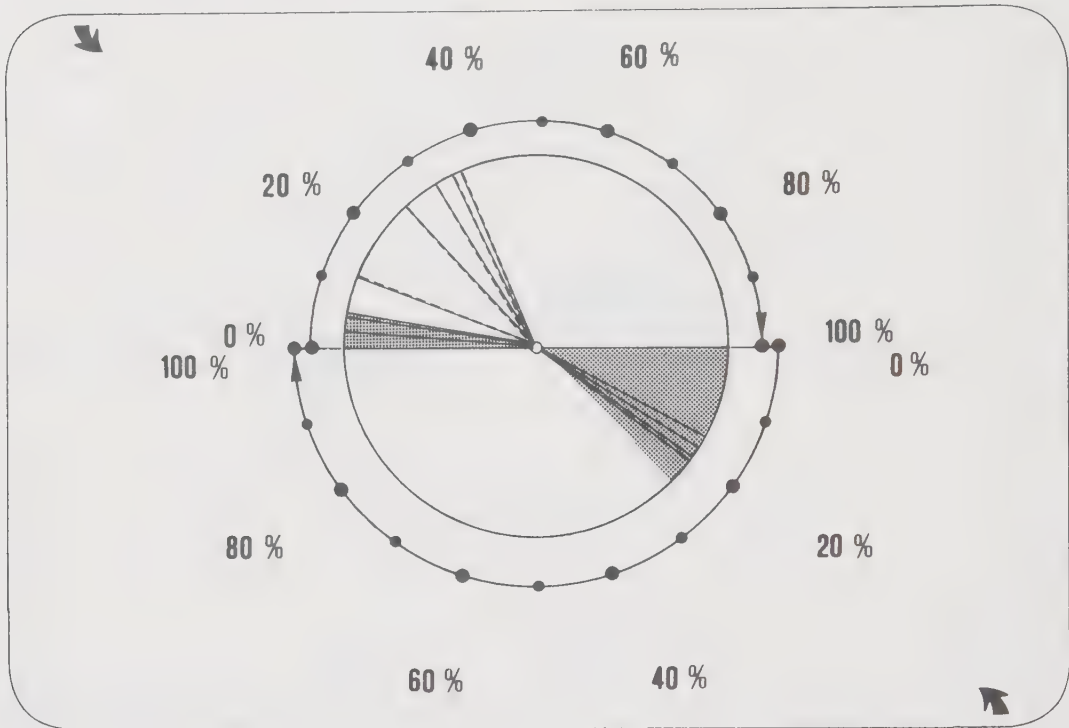
REAL WORLD PREDICTORS: leading physical-functional variables of varimax rotated factors, see 4.42.

- (1) Sphere I predictors : no significant relationships
- (2) Sphere I predictors (replication) : no significant relationships
- (3) Sphere II predictors : Factor 7

|          |                                               |        | % of variance of variable explained by Factor |
|----------|-----------------------------------------------|--------|-----------------------------------------------|
| - V93    | "Tourist information": Points of interest     | 69.5 % |                                               |
| - V42    | Service places                                | 68.6   |                                               |
| - V94    | "Tourist information": Wat, palaces, stadiums | 40.1   |                                               |
| Factor 2 |                                               |        |                                               |
| - V90    | Socio-economic status E                       | 50.4 % |                                               |
| - V89    | Socio-economic status D                       | 37.7   |                                               |
| - V40    | Travel agencies (density)                     | 28.5   |                                               |
| - V100   | First class hotels                            | 25.6   |                                               |

FIGURE 64:  
Extent of agreement on the evaluation of parts of the simulated townscape with respect to representations of "interesting, agreeable, beautiful, valuable subjects":

LINK PREDICTORS: leading photo-scene compositional variables of varimax rotated factors, see 4.42.  
----- Replication (see 4.222.)



REAL WORLD PREDICTORS: leading physical-functional variables of varimax rotated factors, see 4.42.



(1) Sphere I predictors : no significant relationships

(2) Sphere I predictors : Factor 3  
(replication)

% of variance  
of variable  
explained by  
Factor

|      |                                                                  |        |
|------|------------------------------------------------------------------|--------|
| - V7 | Area housing                                                     | 49.8 % |
| - V9 | Area traffic (vehicles)                                          | 38.5   |
| - V1 | Areas housing + utilities + signs +<br>monuments, bridges, walls | 33.3   |

Factor 6

|       |              |        |
|-------|--------------|--------|
| - V14 | Area persons | 13.1 % |
|-------|--------------|--------|

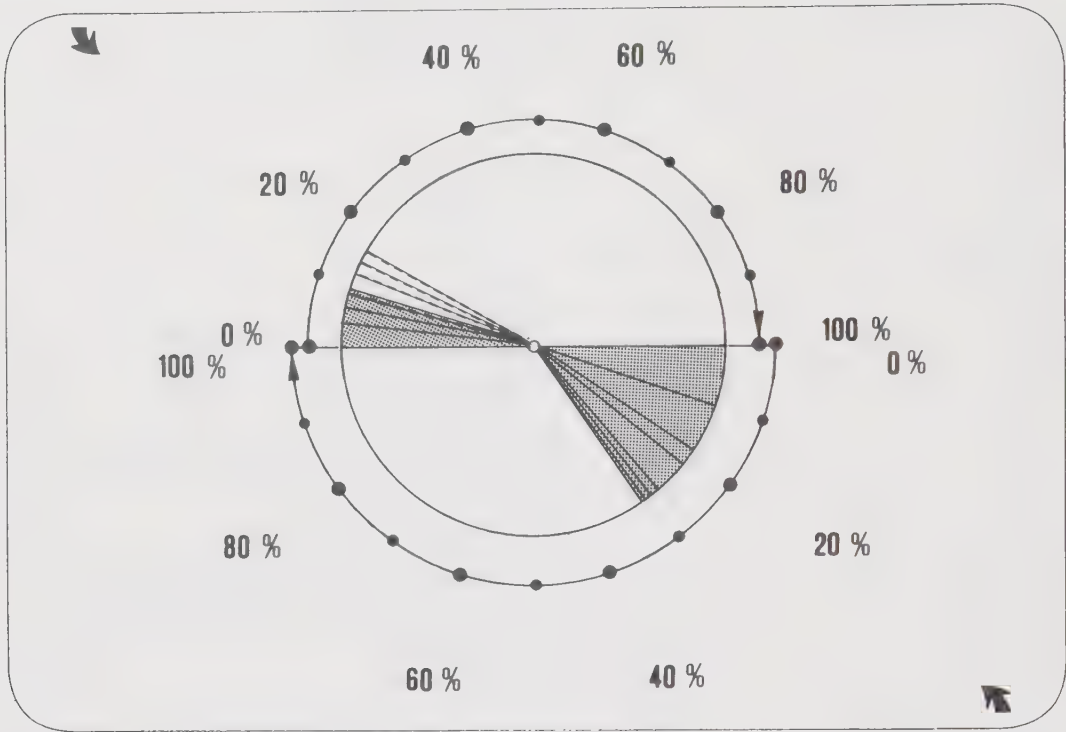
(3) Sphere II predictors : Factor 1

|        |                                                                                         |        |
|--------|-----------------------------------------------------------------------------------------|--------|
| - V38  | Eating houses, street cafes, restaurants<br>(density)                                   | 92.0 % |
| - V64  | New buildings built 1973/74: Residences<br>within/above shops                           | 89.8   |
| - V39  | Grocers and green grocers (density)                                                     | 85.3   |
| - V52  | New buildings built 1973/74: 4 - 6 stories                                              | 83.1   |
| - V35  | Markets (density)                                                                       | 77.8   |
| - V66  | New markets built 1973/74                                                               | 75.7   |
| - V74  | New buildings built 1973/74 (total)                                                     | 68.1   |
| - V57  | New buildings built 1973/74: construction<br>materials other than brick, concrete, wood | 67.3   |
| - V110 | "Tourist information": Points of interest<br>(density)                                  | 58.0   |
| - V101 | Second class hotels                                                                     | 57.5   |
| - V44  | Job opportunities per parking space                                                     | 49.5   |
| - V29  | Traders (general) (density)                                                             | 49.5   |
| - V111 | "Tourist information": Wat, palaces,<br>stadiums                                        | 44.8   |
| - V28  | Food traders (density)                                                                  | 43.8   |
| - V54  | New buildings built 1973/74: brick and<br>concrete                                      | 42.0   |
| - V68  | New office buildings and banks built 1973/<br>74                                        | 31.8   |

FIGURE 65:

Extent of agreement on the evaluation of parts of the simulated townscape with respect to representations of "subjects helpful to orientation":

LINK PREDICTORS: leading photo-scene compositional variables of varimax rotated factors, see 4.42.  
----- Replication (see 4.222.)



REAL WORLD PREDICTORS: leading physical-functional variables of varimax rotated factors, see 4.42.

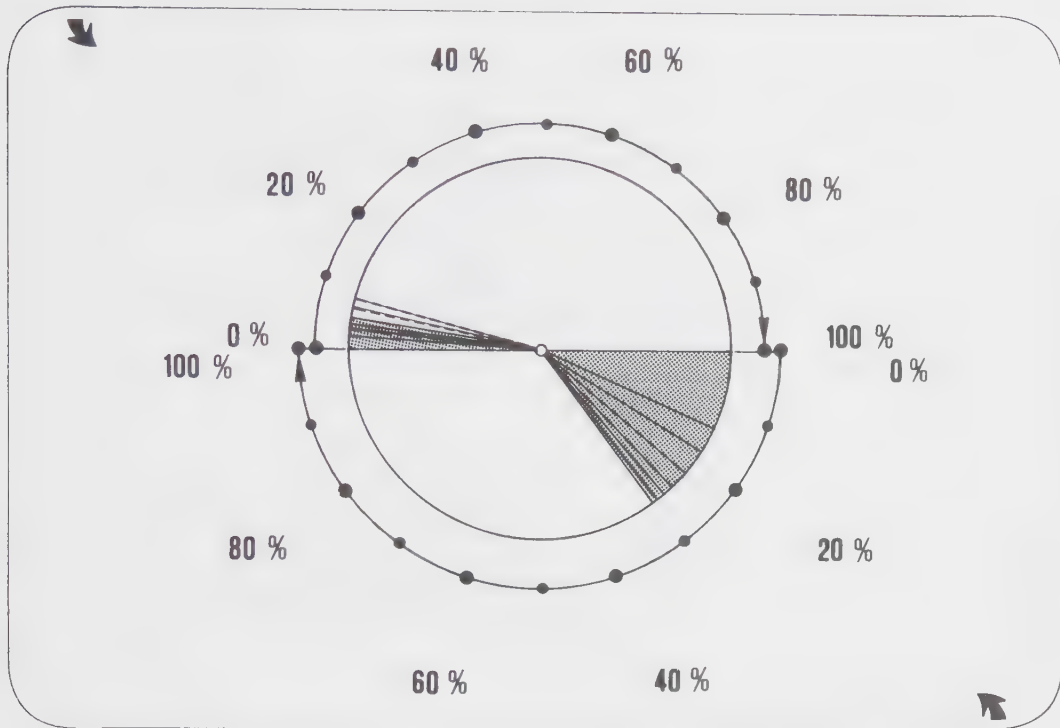
- (1) Sphere I predictors : no significant relationships
- (2) Sphere II predictors : no significant relationships  
(replication)
- (3) Sphere II predictors : Factor 7

|          |                                                     | % of variance<br>of variable<br>explained by<br>Factor |
|----------|-----------------------------------------------------|--------------------------------------------------------|
| - V93    | "Tourist information": Points of interest           | 69.5 %                                                 |
| - V42    | Service places                                      | 68.6                                                   |
| - V94    | "Tourist information": Wat, palaces,<br>stadiums    | 40.1                                                   |
| Factor 6 |                                                     |                                                        |
| - V53    | New buildings built 1973/74: more than<br>6 stories | 74.8 %                                                 |
| - V92    | Owners of motorcycles and scooters                  | 47.3                                                   |
| - V89    | Socio-economic status D                             | 42.4                                                   |
| - V65    | New buildings built 1973/74: Shops                  | 38.4                                                   |
| - V68    | New office buildings and banks built<br>1973/74     | 32.3                                                   |

FIGURE 66:

Extent of agreement on the evaluation of parts of the simulated townscape with respect to representations of "typical features of Bangkok":

LINK PREDICTORS: leading photo-scene compositional variables of varimax rotated factors, see 4.42.  
----- Replication (see 4.222.)



REAL WORLD PREDICTORS: leading physical-functional variables of varimax rotated factors, see 4.42.

|                                          |   |                              |
|------------------------------------------|---|------------------------------|
| (1) Sphere I predictors                  | : | no significant relationships |
| (2) Sphere I predictors<br>(replication) | : | no significant relationships |
| (3) Sphere II predictors                 | : | Factor 3                     |

% of variance  
of variable  
explained by  
Factor

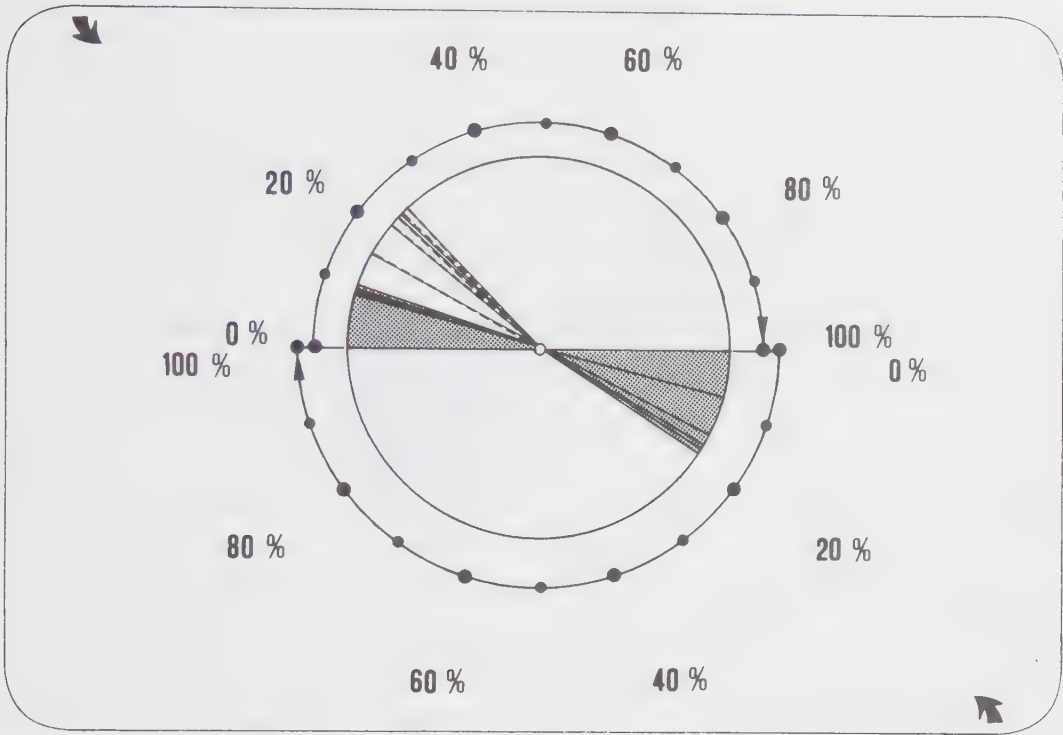
|          |                                                                                                                 |        |
|----------|-----------------------------------------------------------------------------------------------------------------|--------|
| - V51    | New buildings built 1973/74: 3, 3 1/2 stories                                                                   | 78.1 % |
| - V71    | New buildings built 1973/74: other purposes than residence, shop, market, factory, office building, bank, hotel | 74.1   |
| - V70    | New hotels built 1973/74                                                                                        | 67.5   |
| - V67    | New factories built 1973/74                                                                                     | 64.6   |
| - V40    | Travel agencies                                                                                                 | 45.7   |
| - V103   | Leading hotels                                                                                                  | 43.1   |
| - V54    | New buildings built 1973/74: brick and concrete                                                                 | 41.1   |
| Factor 6 |                                                                                                                 |        |
| - V53    | New buildings built 1973/74: more than 6 stories                                                                | 74.8 % |
| - V92    | Owners of motorcycles and scooters                                                                              | 47.3   |
| - V89    | Socio-economic status D                                                                                         | 42.4   |
| - V65    | New buildings built 1973/74: Shops                                                                              | 38.4   |
| - V68    | New office buildings and banks built 1973/74                                                                    | 32.3   |



FIGURE 67:

Extent of agreement on the evaluation of parts of the simulated townscape with respect to representations of "areas which are preferably visited":

LINK PREDICTORS: leading photo-scene compositional variables of varimax rotated factors, see 4.42.  
----- Replication (see 4.222.)

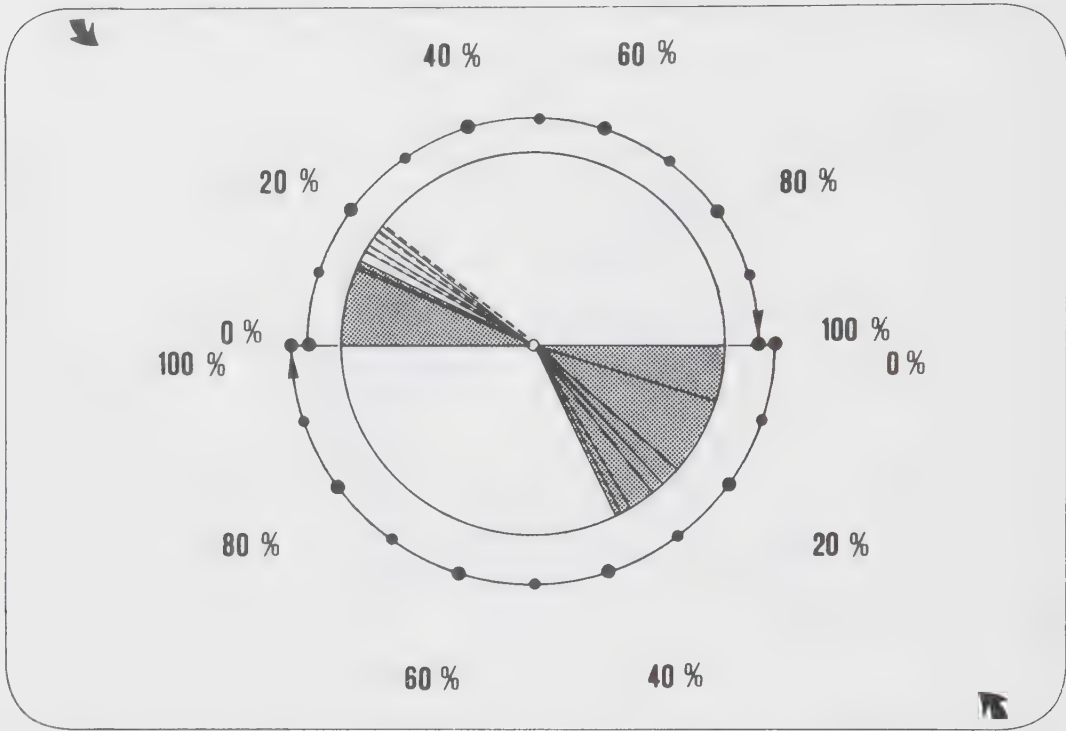


REAL WORLD PREDICTORS: leading physical-functional variables of varimax rotated factors, see 4.42.

|                                          |        |                                                                                                                 |        |
|------------------------------------------|--------|-----------------------------------------------------------------------------------------------------------------|--------|
| (1) Sphere I predictors                  | :      | no significant relationships                                                                                    |        |
| (2) Sphere I predictors<br>(replication) | :      | Factor 6                                                                                                        |        |
|                                          | - V14  | Area persons                                                                                                    | 13.1 % |
| (3) Sphere II predictors                 | :      | Factor 3                                                                                                        |        |
|                                          | - V51  | New buildings built 1973/74: 3, 3 1/2 stories                                                                   | 78.1 % |
|                                          | - V71  | New buildings built 1973/74: other purposes than residence, shop, market, factory, office building, bank, hotel | 74.1   |
|                                          | - V70  | New hotels built 1973/74                                                                                        | 67.5   |
|                                          | - V67  | New factories built 1973/74                                                                                     | 64.6   |
|                                          | - V40  | Travel agencies                                                                                                 | 45.7   |
|                                          | - V103 | Leading hotels                                                                                                  | 43.1   |
|                                          | - V54  | New buildings built 1973/74: brick and concrete                                                                 | 41.1   |
|                                          |        | Factor 5                                                                                                        |        |
|                                          | - V85  | Ethnic groups: DK/NA                                                                                            | 91.6 % |
|                                          | - V83  | Ethnic groups: Chinese                                                                                          | 75.1   |
|                                          | - V92  | Owners of motorcycles and scooters                                                                              | 28.2   |

FIGURE 68:  
Extent of agreement on the evaluation of parts of the simulated townscape with respect to representations of "areas which are negatively recommended, i.e. not to visit them":

LINK PREDICTORS: leading photo-scene compositional variables of varimax rotated factors, see 4.42.  
----- Replication (see 4.222.)



REAL WORLD PREDICTORS: leading physical-functional variables of varimax rotated factors, see 4.42.

|                                          |            |                                                  |                                                        |
|------------------------------------------|------------|--------------------------------------------------|--------------------------------------------------------|
| (1) Sphere I predictors                  | : Factor 1 |                                                  | % of variance<br>of variable<br>explained by<br>Factor |
|                                          | - V20      | Perimeter background                             | 92.1 %                                                 |
|                                          | - V19      | Area background                                  | 91.5                                                   |
| (2) Sphere I predictors<br>(replication) | : Factor 4 |                                                  |                                                        |
|                                          | - V19      | Area background                                  | 84.0 %                                                 |
|                                          | - V20      | Perimeter background                             | 82.9                                                   |
| (3) Sphere II predictors                 | : Factor 9 |                                                  |                                                        |
|                                          | - V27      | Car density                                      | 11.8 %                                                 |
|                                          | Factor 8   |                                                  |                                                        |
|                                          | - V112     | "Tourist information": Restaurants, bars         | 78.9 %                                                 |
|                                          | - V94      | "Tourist information": Wat, palaces,<br>stadiums | 31.1                                                   |

## PART 5. SUMMARY AND CONCLUSIONS

### 5.1. Summary

#### 5.11. Statement of the problem and disposition

This study was an attempt to measure the general image of the city-destination's complementary factors of a group of European package tourists using the photographic surrogate method.

It uses a response form which exerts minimal constraint on the responses given by interviewees. The study was designed as a test of the usefulness of the photographic surrogate method among package tourists in an environmental context and not primarily as a data-gathering exercise.

The image data which resulted from the application of the photograph-test in the form of the Extent of Agreement on the evaluation of parts of the simulated townscape were subjected to multiple regression analysis, whereby physical-functional (also called visual-cultural) Sphere II variables and photo-scene compositional Sphere I variables served independent variables.

These variables were subjected to principal components analyses prior to the multiple regression analyses.

The image was conceptualised as consisting of a set of perceived elements of the environment, which were located along a series of scales of common concepts.

Image elements can be "objective" physical features, such as urban places, bridges, houses, and so on, or "subjective" or intangible features, such as the atmosphere of a district, the bustle of a city, and so on. The common concepts used to assess image elements can also be of different types.

Evaluative concepts, on the one hand, express opinion about elements and include such scales as dirty-clean and good-bad. Descriptive concepts, on the other hand, make more objective statements about elements, for example, in terms of location, accessibility, and so on.

#### 5.12. The results, a synopsis

Interpretation and deduction of substantive hypotheses becomes more difficult in connection with Sphere II-predictors. They cannot, as data about a universe, be judged according to their degree of significance.

We consider it necessary at this point to enter briefly into the relationship between statistical significance and substantive hypotheses. We follow in principle GALTUNG's treatment of this problem.

"A substantive hypothesis is confirmed, but the finding is not statistically significant; the null-hypothesis is not rejected. What, then, about the substantive hypothesis - would it have to fall, together with the generalization hypothesis? The most extreme case would be the case where we have a sample that is a sub-universe, and the substantive hypothesis is rejected because the finding is not 'significant'. This all investigators who apply statistical tests to universes must be willing to do, as one obviously cannot apply a test only if one has looked at the data in advance and been guaranteed significance ... Thus rejection may mean rejecting something with substance, something which might have led to important insights.

Secondly, let us imagine that the finding is not isolated, but can be related (theoretically) to other findings. In that case, as has often been emphasized in the literature, we should consider theoretically related findings, jointly ... As anyone would agree, a better, although not always feasible, policy would be to obtain a larger sample (or more samples) to see whether the finding still holds up; or to see whether the same finding also holds for independent subsamples. The latter would be 'internal replication', the former 'external replication', whereas the hunt for other findings to which one could relate the first finding theoretically may be referred to as 'theoretical replication'. We reject the latter because we feel it is only a function of the level of imagination of the researcher." (GALTUNG, 1970, p. 373 compare also GOODCHILD, 1974, p. 167).

"... the abuse of statistical tests to test the substantive hypotheses has, we feel, conduced to a much too low acceptance level where degree of association is concerned. Correlation coefficients are accepted just because they are statistically significant, which means that a methodology invented to guard against too low differences and associations has led to exactly the opposite of what was intended, with the sample sizes modern researchers usually have at their disposal. Complex theories are constructed on the basis of rather small percentage differences just because they are 'significant' - and so on. But the remedy here, theories refined enough to permit the derivation of propositions about a specified level of association, not only 'association' in general, is still for the future." (For more elaborate description, see GALTUNG, 1970, pp. 376 ff.)

The results are interpreted as follows:

We are not, here, primarily interested in the overall amount of variance explained. (All the results of the multiple regression analyses are presented in appendix 8).

We are interested primarily in the relative succession of variables of Sphere II which were, according to the criteria mentioned under 4.3, introduced into the linear prediction equation.

Based on the assumptions concerning variables of Sphere II and Sphere IV (data about universes), the results are to be subjected to internal and theoretical replications in order to see whether the findings are of substantive importance. (cf. GALTUNG, 1970, p. 373).

In order to interpret the results of mechanical computations we begin with the four variable spheres. The variances of these are employed to explain observed or unobserved relationships according to the degree of their theoretical relevance.

The sphere variables are used dichotomously on the basis of the data. Nothing can be said about more detailed scaling, i.e. about their magnitude. Any attempt at scaling would necessarily appear artificial and could not be supported. The following spheres are compared:

(1) Sphere I: Photo-scene compositional variables.

They are either appropriate or inappropriate for the measurement of the concepts dealt with.

(2) Sphere II: Physical-functional variables.

They are either appropriate or inappropriate for the differentiation (measurement) of the concepts dealt with.

(3) Sphere III: Extents of agreement.

They are either pronounced or not pronounced (i.e. all photographs can be chosen without regard to Sphere I or Sphere II respectively). This minute distinction can be based again on (1) Sphere I,

(2) Sphere II, or

(3) Sphere IV (Attributes of personality).

Sphere IV offers the problems which are the most difficult to solve. They cannot be solved by means of the results of this paper alone. Findings of other works, especially of landscape-perception studies, must be considered here in order to interpret them.

The procedure of interpretation is such that first the predictors of Sphere I are interpreted.

The variables of Sphere I can certainly not suffice for the selection or non-selection of photographs which serve to illuminate the concepts of townscape vocabulary.

It is a question of whether the photo-scene compositional variables have necessary or sufficient characteristics.

For this reason, then, in a second step, the physical-functional predictors are set in relationship to the concepts to be dealt with, not as support-, but as semantic information which is of focal interest.



The combination of the link- and the real world predictors first allows the step from the interpretation of the individual EoA as dependent variables to hypotheses concerning common mental pictures of Bangkok held by the tourists investigated.

Sphere I variables do not significantly account for the following Extents of Agreement:

- (1) Central areas within the townscape
- (2) Uniform areas within the townscape
- (3) Representations perhaps taken in Bangkok
- (4) Representations taken for certain not in Bangkok
- (5) Subjects helpful to orientation
- (6) Typical features of Bangkok

The result is surprisingly favourable: The variables of Sphere I should - since they are understood solely as unavoidable link-variables - not influence the Extents of Agreement if at all possible, i.e. they should be inappropriate for the measurement of the concepts dealt with.

Since it is a matter of sample data, the variables of Sphere I must, as generalizable predictors, be set in relationship to the Extents of Agreement concerning the following concepts:

- (1) Borderlines and distinct areas within the townscape
- (2) Intensively used areas within the townscape
- (3) Areas which are negatively recommended i.e. not to visit them

For the prediction of the Extents of Agreement concerning the concepts

- (1) Interesting, agreeable, beautiful, valuable subjects
- (2) Representations taken for certain in Bangkok
- (3) Areas which are preferably visited

Variables of Sphere I do not necessarily have significant influence (cf. appendix 8).

(1) "Central areas within the townscape"

Factor 2, which is virtually represented by V 90 (Socio-economic status E) and V 89 (Socio-economic status D) accounts primarily for the variance of the EoA concerned.

Only V 90 is, however, unidimensional (factorial complexity = 1) and will be used for explanation from now on.

V 89 is multidimensional and will further on be exempted from consideration. Its factorial complexity is 3 ( $r > .3$ ).

There exist no other variables with high loadings on this factors. Socio-economic status E, however, means:

"Economically they are on subsistence level or less. Their housing is sub-standard for their community ... At least 95% of what little they earn goes for food, a limited amount of clothing, and some sort of shelter. The occupation of the head of household is invariably unskilled labor -- if he is not unemployed: longshoreman, coolie, sweeper, janitor, office boy, highway worker... He has little or no education ..." (BUSINESS RESEARCH LIMITED, 1966, 1971, see appendix 5).

Considering the results of the factor analysis, one would at first sight tend to expect factors 1 or 5 rather than factor 2 to be relatively strong predictors. But it is a characteristic feature of Bangkok that city functions are intermingled with residential functions in areas with a large proportion of the population belonging to the socio-economic status E, which we typify as "Chinese-Thai residential streets".

"Central areas" therefore tend to be equated with "Socio-economic status E" and with high "densities" (cf. RAPOPORT, 1975):

The major question, then, regarding density is how it is judged. The answer is that, as in the case of any environmental system, density is "read" (or decoded). Any environment offers cues whereby people judge its nature, the potential for action which it offers, and the behavior appropriate to it. It should follow that certain cues-physical and social-are read and interpreted as indicating a dense environment, while others tend to indicate one which is "not dense" irrespective or, or at least partly independently of, the actual number of people per unit area. It is a high rate of stimuli which leads to a reading of high density. Any elements, physical or social, which increase uncertainty, reducing redundancy and demanding attention and increased information processing, lead to increased perceived density. Density is judged by the amount of information which needs to be processed - total and per unit time - and environmental cues are - read as indicators of the rates of likely interactions-they are thus a measure of such interactions and also surrogates for them. Thus, the way in which the elements are organized and related-physically, socially, and temporally- has a major impact on the perception of density and relates a given number of people per unit area to perceived density.

It thus seems clear that there are major effect on the perception of density of social factors such as population homogeneity, kinship, age, sex and sex roles, ritual, activity cycles, extent of home range, and many other types of cultural differences. (cf. RAPOPORT, 1975, p. 146)

Turning to the two major components of perceived density (information from the environment directly and in terms of human interaction), it can be argued that in a dense area the effects of social interaction (actual or potential) are compounded by sensory inputs and cues from the physical environment-lights, sounds, noises, smells, movement-which demand attention in themselves and which are also surrogates for, and indicators of, human presence- and hence potential interaction.

Therefore, there are two themes:

- (1) the central role of perception in transmitting sensory data to people and hence in their evaluation of density in terms of information processing
- (2) the presence and use of a large number of physical and social mechanisms which modify density in terms of people per unit area and provide the basis for the cues whereby density is perceived and judged.

"Thus, a concept of density based on a simple ratio model does not seem adequate to predict either behavioral or subjective consequences, and the experience of density must go beyond such ratios. At the very last, density comprises two components—we shall see later that there are many more—and these are the number of people present in an area and the space available per person (Saegert, 1973) which may be related to their interpersonal distance (Kutner, 1973), although I would argue that it is functional rather than physical distance which determines the effective density (Festinger et al., 1950; Whyte, 1956). At the heart of both density and crowding seems to be an awareness of other people through all the senses and, directly or through physical cues, a consciousness of the sharing of spaces and facilities, as well as cultural and physical "defenses" which help control this awareness of others." (for a more elaborate description, see RAPOPORT, 1975).

The second, orthogonal Factor no. 8, which accounts for the residual variance, again comprises only one unidimensional variable, namely restaurants and bars recommended for these package tourists (compare also "uniform areas within the townscape", p. 174).

A comparison of maps (see p.178 ) will show to what extent areas with a high proportion of Socio-economic status E and of V 112 correspond with one another.

- (2) "Interesting, agreeable, beautiful, valuable subjects"

Only one factor, no. 1, determines clearly the proportion of variance accounted for by variables of Sphere II.

The concept dealt with is certainly multidimensional. It is therefore not astonishing that factor 1 is the most suitable predictor:

As variables which load only this factor highly, there are in the first place Eating places and Food-shops of all kinds, then markets and newly built markets (in 1973/1974).

The strong impression made by the combination of these variables is reinforced by the variables V57, V52 and V74 which are to be added as variables with factorial complexities = 1.

It is a matter of new buildings built 1973/1974 (4-6-stories), new buildings built 1973/1974 (total number) and buildings built from other construction materials than brick, concrete, or wood (e.g. steel, glass).

This factor is none other than the composition of variables which signify the highest degree of activity in every-day life as well as in construction making for changes in the townscape. And on this very factor, V111 representing touristic points of interest loads, i.e. the relationship between this variable and factor 1 is positive. During the obligatory visits of the primary attractions, the tourist is therefore in contact exactly with these most vivid areas. The stimuli originating from these are highly in agreement in their registration and may, by associations to photographs surrogates, be related rather reliably to the concept dealt with.

However, it has to be mentioned here - vicarious of all the other EoAs - that, in spite of interpretability of Sphere II - predictors, a larger proportion of EoA-variance must be explained otherwise!

On the side of Sphere I, predictors like "Area housing" (V7) and "Area traffic (vehicles)" (V9) are well to the fore, variables then such as represent human activities as well.



It is of note that "Area vegetation" or "Area Water" do not produce significant predictors. This would lead to the conclusion that in this citydestination, environmental amenities of this kind are not taken as "interesting, agreeable, beautiful, valuable subjects".

(3) "For certain in Bangkok"

Factor 2 ranks first among Sphere II predictors for this EoA, as already was the case for central areas within the townscape.

Socio-economic status E as the only one high loading variable with factorial complexity = 1 corresponds relatively closely with the EoA concerning "what is certainly Bangkok". Furthermore the inclusion of factor 7 at the second step illuminates one aspect of the common mental picture:

It is determined to a high degree by "Touristic points of interest", and, secondarily by "Service places" (under which term establishments are understood where restauration does not or not only play the important role, i. e. registered massage parlours).

From the point of view of photo-scene composition, those photographs which represent impressive objects (monuments, bridges, townwall) or which, by means of a large proportion of middleground, facilitate the identification of objects in medium scale connections, account for a significant amount of the variance of the EoA.

The Foreground is on too large a scale, the Background on too small a scale to be able to provide security in the judgment of the photographic situation.

(4) "Perhaps in Bangkok"

Whereas factor 7 accounts (in second places), for the EoA concerning "what is certainly Bangkok", its relevance for "what is perhaps Bangkok" takes first place. Socio-economic status E comes second. Predictors of Sphere I do not have any significant influence on the selection or non-selection of a photograph.

This can mean that

- (1) the kind of photograph-among those presented-does not play any role, or
- (2) the variables chosen are not suitable for the recording of the content relevant to this concept.

On consideration of the levels of significance in "... taken for certain in Bangkok" the latter has to be nullified.

Thus, the explanation remains that conceptions differ considerably about what is suitable to illuminate the concept in question.

Among the personality variables (cf. appendix 7) it is contended that the following play a role:

V10 (Area utilities)

V13 (Area monuments, bridges, walls)



(5) "For certain not in Bangkok"

Here, the same statements as under "perhaps ... in Bangkok" can be made. But, again, it is difficult to explain the fact that Socio-economic status E (factor 2) ranks first in accounting for the variance of the EoA.

The proportion accounted for is small.

Secondly, the ethnic group of the Chinese accounts for the EoA variance. In fact, all photographs were taken within the urban fringe. Consequently, the city boundaries which mark the abrupt change between town and countryside were never crossed:

"Almost all the countries that can be labeled as "developing" carry in them a dual culture: one traditional and primarily agro-based, another modernized or moving close to modernization under the steady impact of growing industrialization and urbanization. The differentiation is so sharply evident that as one crosses a city boundary, the habitation pattern and way of living beyond the urban fringe abruptly change." (BHATTACHARYA, 1975, p. 52)

The result is to be interpreted as follows: The consensus about "what is not Bangkok" is weakly developed. We cannot find properties of the townscape which are, to a high degree of agreement, misinterpreted as lying outside Bangkok.

(6) "Borderlines and distinct areas within the townscape"

The large proportion of EoA-variance accounted for by Sphere I as well as by Sphere II has to be noted. Properties of the photographs as well as properties of parts of the townscape account for much of the variance.

Socio-economic status E and touristic points of interest/Service places are first to explain the variance, i.e. the same predictors as for the EoA concerning "what is certainly in Bangkok".

However, the proportions of variance accounted for by Sphere I predictors are considerably higher than those accounted for by Sphere II predictors.

In particular, a confrontation will have to be made with "uniform areas within the townscape" concerning the predictors of Sphere II.

For the moment, it seems that Sphere II variables cannot be used effectively for explanation of this EoA.

From the Sphere I predictors, it can be deduced that "area-water", "bridges", "area housing" (in Bangkok, especially in areas with a high proportion of Socio-economic status E/D, usually row houses) as well as "area open spaces/streets", are considered to a significant degree of agreement to represent borderlines.

Distinct areas, however, can also be deduced. Areas with a high proportion of socio-economic status E and areas with a high density of touristic points of interest are interpreted as distinct areas. This leads to the conclusion that the factors no. 2 and 7 play a considerable role for perception as well as for assessment. They are met as relatively strong predictors for "... certain in Bangkok" as well as for "distinct areas".

"Boundaries can be seen to have three meanings. The first relates to the definition of density in terms of people per unit area. Clearly the choice of areas, i.e., the definition of boundaries, will affect the density in these terms. This has already been discussed and will be elaborated below - it is related to the use of streets, shops, cafes, and like areas for activities which in other cases occur in the dwelling ... and also to the definition of city limits, census tracts, and so on.

The second meaning relates to physical boundaries - e.g. walls, fences, and curtains. All of these are devices for controlling interaction and information flow and have differing degrees of permeability (varying also with regard to the different sense modalities). In a way they can be seen as filters allowing varying amounts of information to flow in various directions - an informational analogue of the buildings as climatic filter.

third, there are social boundaries (Barth, 1970) separating groups, i.e., they tend to separate members from nonmembers, "us" from "them" (which has been suggested as an important function of culture generally). Density will be read differently, and behaviors will be different in their presence or absence. Thus the presence of boundaries appropriate to the context will reduce the impact of one individual on another, will moderate the invasion of, say, personal space, and will allow more people in the same area, i.e., effectively increase density (Baum et al., 1974; Desor 1972)." (RAPOPORT, 1975, p. 142).

(7) "Intensively used areas within the townscape"

Again, the Socio-economic status E appears as first namely predictor of Sphere II of the first rank.

The effect is supported by V58 (ratio of built-up area per total area), the density of general traders, (V29) hairdressers and barbers, and the housing density, whereby it must be noted that only the ratio of built-up to total area is unidimensional.

Therefore it seems reasonable to limit interpretation and graphic representation to this predictor.

The effect of the orthogonal predictors is therefore reduced to two variables: Socio-economic status E and Ratio of built-up area per total area.

They herewith correspond to RAPOPORT's hypothetical variables for density:

A list of these variables from the point of views of perceptual, associational/symbolic, temporal, physical/sociocultural, sociocultural aspects of density may be found on pages 138-140 of his paper.

The significant predictors of Sphere I can be summarized as follows:

Where the proportion of "(areas) utilities, housing, traffic" is high and where the photograph represents "depth", a more marked EoA concerning "intensively used areas" exists than in the case of other predominant photo-scene compositional variables.

(8) "Uniform areas within the townscape"

There exist no significant predictors of photo-scene compositional variables. The examination of the choice of photographs does not show an equal selection. The EoAs per Photograph lie between 0% and 35%.

The Sphere II predictors differ completely from those found for "borderlines and distinct areas within the townscape." We find the same characteristics as between "...for certain in Bangkok" and "perhaps...in Bangkok/...for certain not in Bangkok".

The EoA concerning "central areas within the townscape" and "borderlines and distinct areas within the townscape" concepts are deducible more clearly from Sphere I and Sphere II predictors than EoAs concerning categories of concepts with "residual" character for which other predictors have to be hypothesized. ("...for certain not in Bangkok, perhaps ... in Bangkok, uniform areas within the townscape").

Restaurants and bars recommended to tourists and mobility in private vehicles account for most of the variance of this EoA.

The Car density stresses mobility in private vehicles and guides our attention - towards areas shown in the map - 10 - which must be limited by the consideration necessarily given to the variance explained by other predictors.



first, monotonous environments result in sensorial rejection to a degree that they are partially unperceived. The study of Evans and Piggins explains this phenomenon (LOZANO, 1974, p. 358).

Their study indicates that an environment organized exclusively on a low level order - the traditional aesthetic of modern urbanism - would not be properly seen, in the sense of a conscious perception. Monotony, then, can be considered as a sensorial deprivation, since human senses tend to reject such visual conditions.

In a confused environment, formed by a continuous flow of diverse visual inputs without any perceived link, the observer is bombarded with disjointed visual inputs until it is saturated. His predictability is drastically reduced since there is no understandable rhythm, and expectation is drowned in a fast build-up to nothing. The saturation experience means that the observer loses the enjoyment of variety and his senses become insensitive to this succession without purpose.

Being unable to search, compare and choose in a short time available, the tourist behaves in two ways: selecting randomly or following the first familiar sign that is found in the midst of a confusion of lights, poles and billboards. In other words, the slightest bit of orientation immediately attracts the attention, relieved from the unrelentless undifferentiated confusion.

"Visually, the apparent variety of signs and lights actually cancel each other. Our hypothesis, thus, is summarized in a need for a combination of a plurality of visual inputs, the extremes of which can be defined in several ways: redundancy and new information, low order and high order, immediate understanding and incomplete understanding, orientation and variety. The functioning of the human mind, which always recognizes the simplest organizations first - according to the Gestalt psychologists - would permit the low order subsystems of the built environment to satisfy the need for orientation, regardless of the complexities of higher order subsystems. In conclusion, the proposed hypothesis of a human need for complex visual inputs from the environment in a combination of orientation/unification and variety/rhythm, appears confirmed by research findings, appears present in urban areas which, by consensus, are considered visually successful and is absent in areas where the intuitive reaction is negative." (LOZANO, 1974, pp. 359-373).

#### (9) "Subjects helpful to orientation"

We meet again a case where Sphere I predictors are inappropriate to give significant account of variance in the EoA concerning this concept.

It is important here to include the six photographs which were excluded from further computation in the multivariate analysis because they were taken according to other criteria (cf. Fig. 44, p. 97). Their individual EoA show, that the consensus about their being appropriate to correspond to this category is high (between 36.7% for photograph no. 22 and 70.8% for photograph no. 3) (selected were the numbers 1, 3, 6, 22, 33, and 41).

"Touristic points of interest" and "Service places" are forthcoming among the Sphere II predictors. The fact that new buildings with more than 6 stories, owners of motorcycles and scooters, Socio-economic status D, new shops, office buildings and banks - in short, Chinatown - takes second place, and together with the absence of Sphere I-predictors leads to the conclusion that - under consideration of the technical criteria of the photographs - areas are evaluated accordingly in respect to orientation.

Tourists therefore orient themselves primarily on the basis of properties of areas and secondarily on the bases of single objects of prominent symbolic importance (usually known before arrival, e.g. from brochures, postcards, posters), compare photograph no. 7, 8, 1, 3, 6, 22, 33, and 41. A comparison with "uniform areas within the townscape" shows that F7/6 and F8 differ basically according to the EoAs, i.e. they can be taken orthogonally also in respect to the concepts dealt with.

(10) "Typical features of Bangkok"

It can be noted from the Sphere II predictors that latent information is represented particularly about different kinds of new buildings (built 1973/1974).

The fact that buildings with pure residential functions rank unidimensionally among the variables represented by factor 3, indicates the type of areas which play the most important role in accounting for the variance of this EoA.

The second factor for prediction mainly sums up Chinatown.

Therefore, once more, two different types of areas which are independent are used to explain a proportion of the EoA.

(11) "Areas which are preferably visited"

In the case of the EoAs concerning "areas which are preferably visited" and "areas which are negatively recommended, i.e. not to visit them", the residual matrices have to be taken into consideration.

They show linear relationships between the residuals and the EoAs.

Among the Sphere I predictors "area persons" is significant and unidimensional whereas the fact has to be considered that relatively little variance of this variable is accounted for by factor 6 (Sphere I replication).

Among the Sphere II predictors, the same are effective as under "typical features of Bangkok". They are followed in importance by "ethnic group: Chinese". This predictor is orthogonal in respect to factor 6, but nevertheless comprises areas which show high values on both on factors 6 and 3.

(12) "Areas which are negatively recommended, i.e. not to visit them"

Among the Sphere II-predictors, restaurants and bars recommended to tourists rank first.

(Car density, i.e. factor 9, will not be considered any longer since this factor accounts only for 11.8% of the variable's variance).

The significant Sphere I predictors which all are related to background variables (perimeter, area) is to be noticed.



We proceed in the following and last step to the final evaluation and therefore to the core of this paper - the suggested solution:

All the relevant predictors interpreted above, i. e. leading variables of predictor-factors (only sphere II-predictors are dealt with) are selected for all the Extents of Agreement (criteria).

We limit the scale of intensities of the Sphere II-predictors to a 5-point-scale with proportionate scaling.

Hereby, the formation of spatial classes according to the contingency principle can never take into consideration all spatially relevant criteria, a selection must suffice. This selection is never right or wrong. It is only applicable or not applicable to the goal of investigation followed. This means that there is not natural classification but rather only multiple-purpose and special-purpose classification. Therefore the goal must be defined prior to any regionalizing.

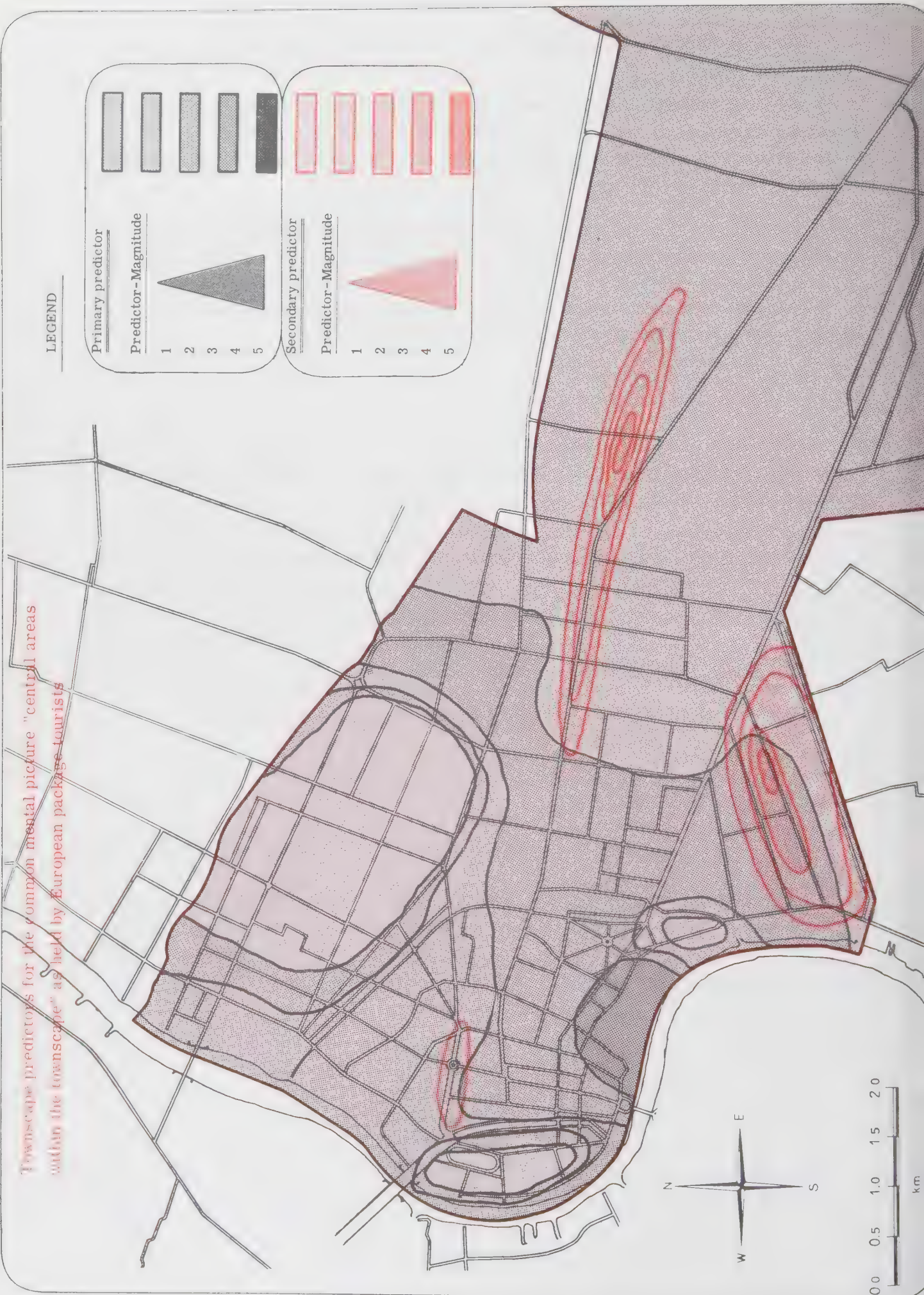
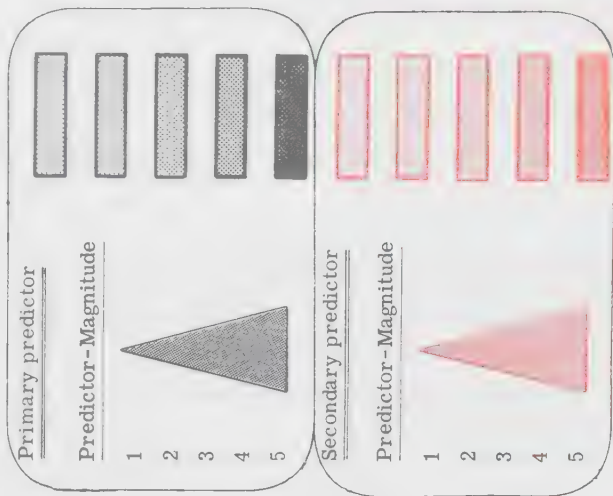
For these variables, isohypsic maps are drawn. This is based on the body of data (the districts are rather large), the understanding that the Extents of Agreement are a rather crude measure, and on the need for quick legibility.

By putting the cartographically represented predictors one upon another, the townscape can be divided according to the Extents of Agreement as concerning the different concepts of each.

In the following, these thematic cartographical representations which may be useful for insights in more appropriate touristic types of "land-use" are collected in the form of 12 maps, i. e. one map for each of the 12 concepts dealt with. A more sophisticated combination is meaningful and possible, but this presentation has been chosen for technical and visual reasons.

Townscape predictors for the common mental picture "central areas within the townscape" as held by European package tourists

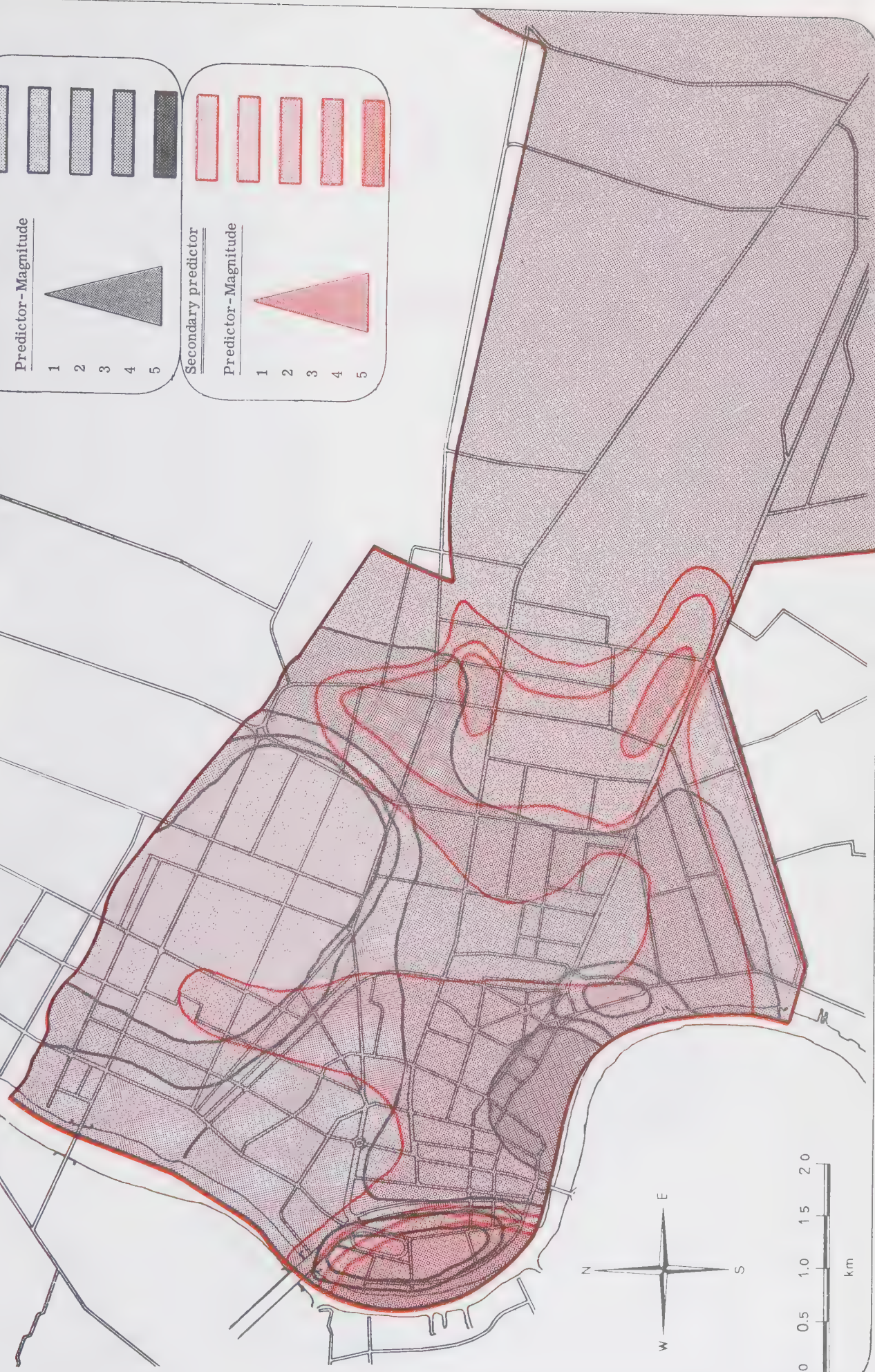
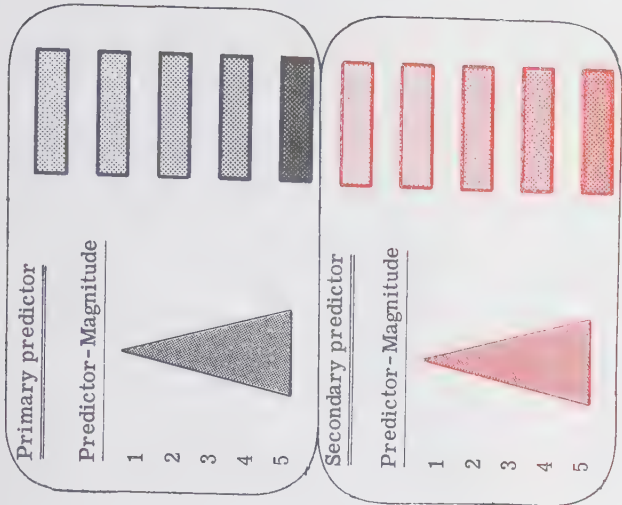
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Townscape predictors for the common mental picture "for certain in Bangkok" as held by European package tourists

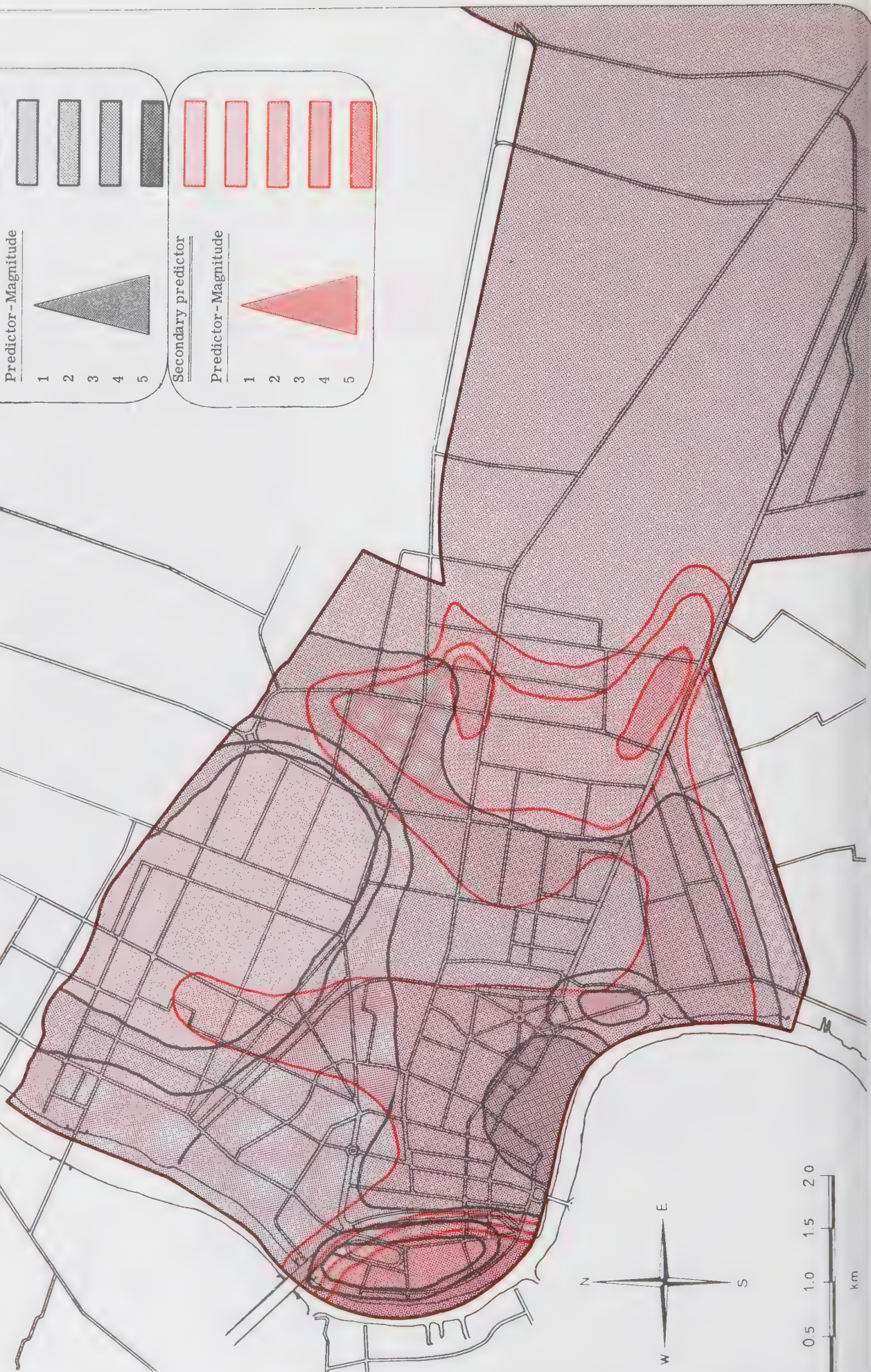
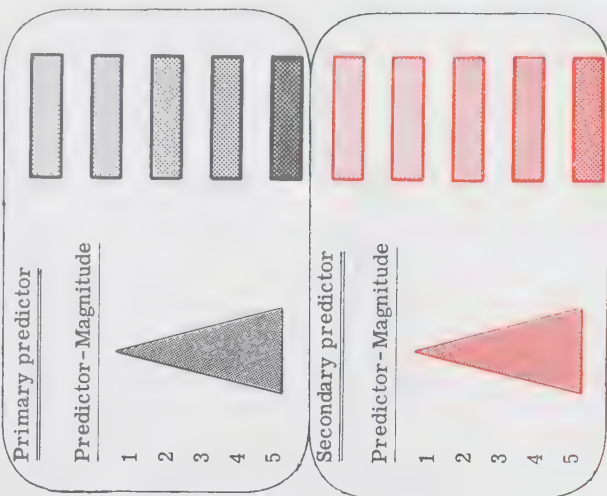
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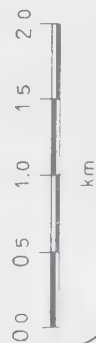
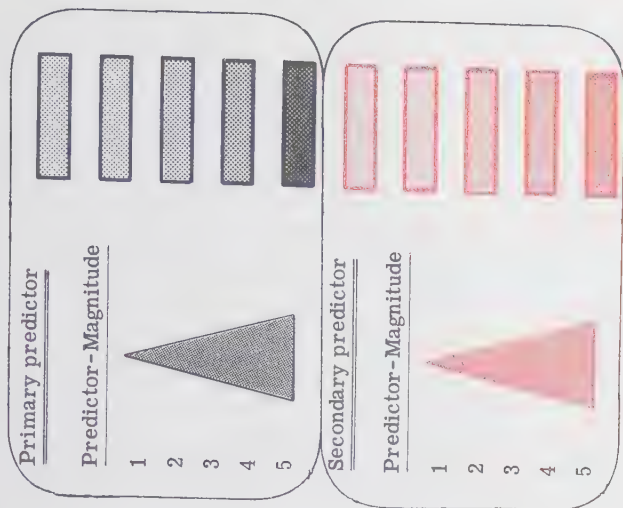
Townscape predictors for the common mental picture "borderlines and distinct areas within the townscape" as held by European package tourists

LEGEND





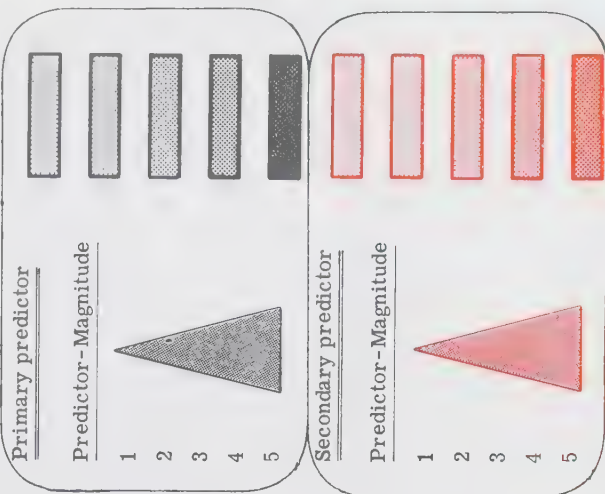
Townscape predictors for the common mental picture "intensively used areas within the townscape" as held by European package tourists





Townscape predictors for the common mental picture "uniform areas within the townscape" as held by European package tourists

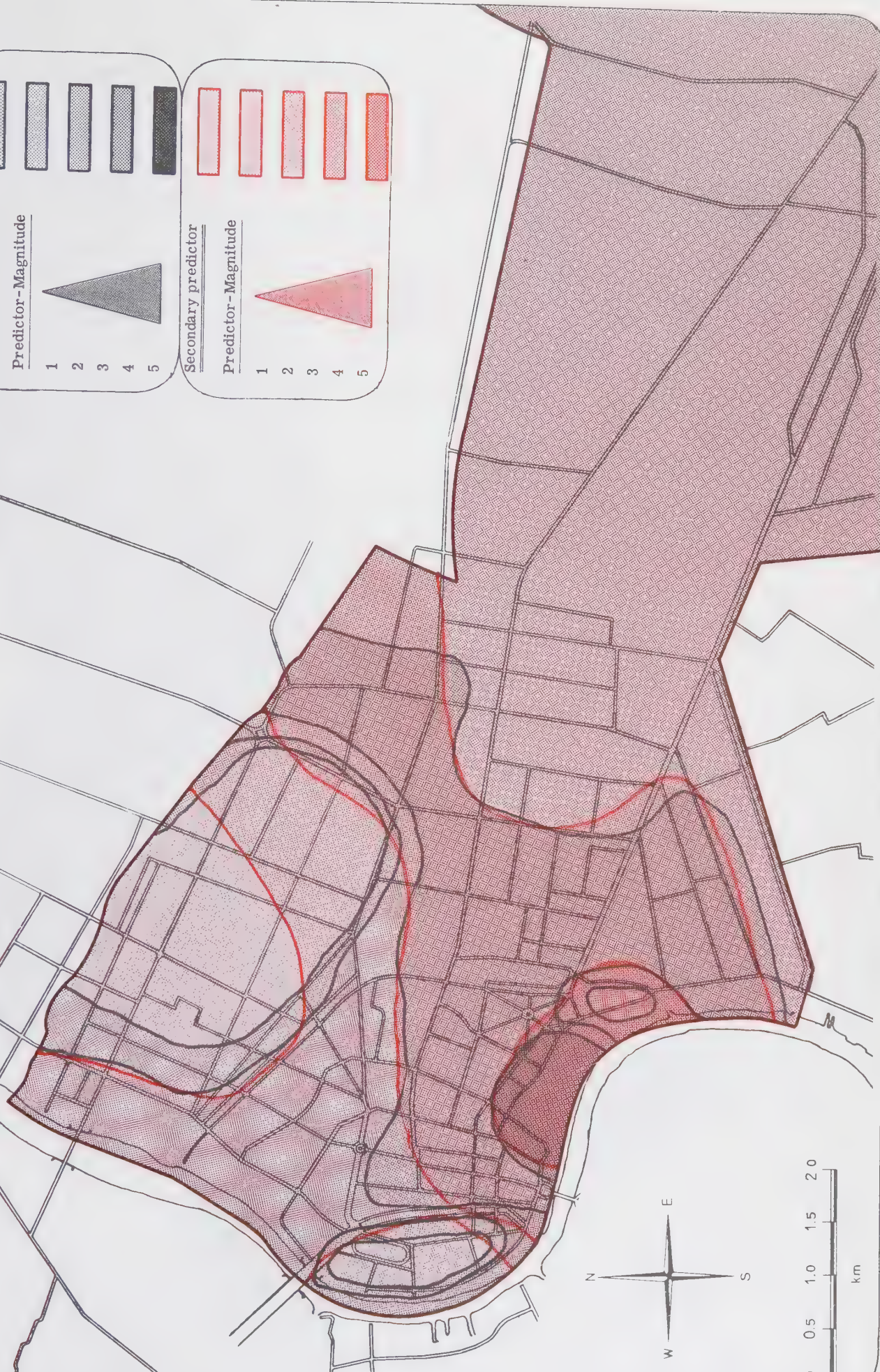
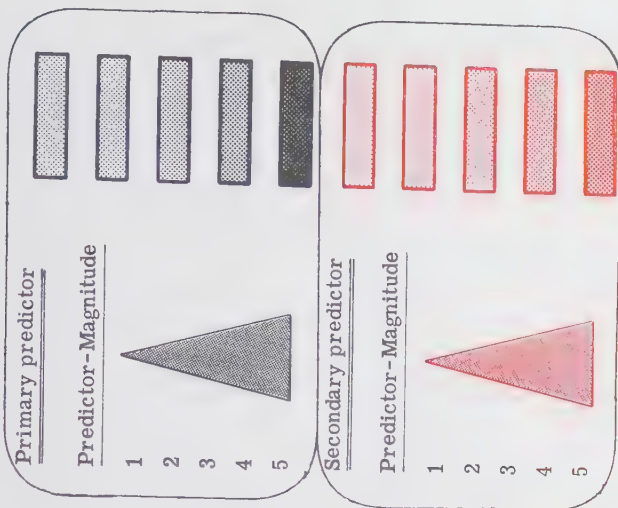
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townscape predictors for the common mental picture "for certain not Bangkok" as held by European package tourists

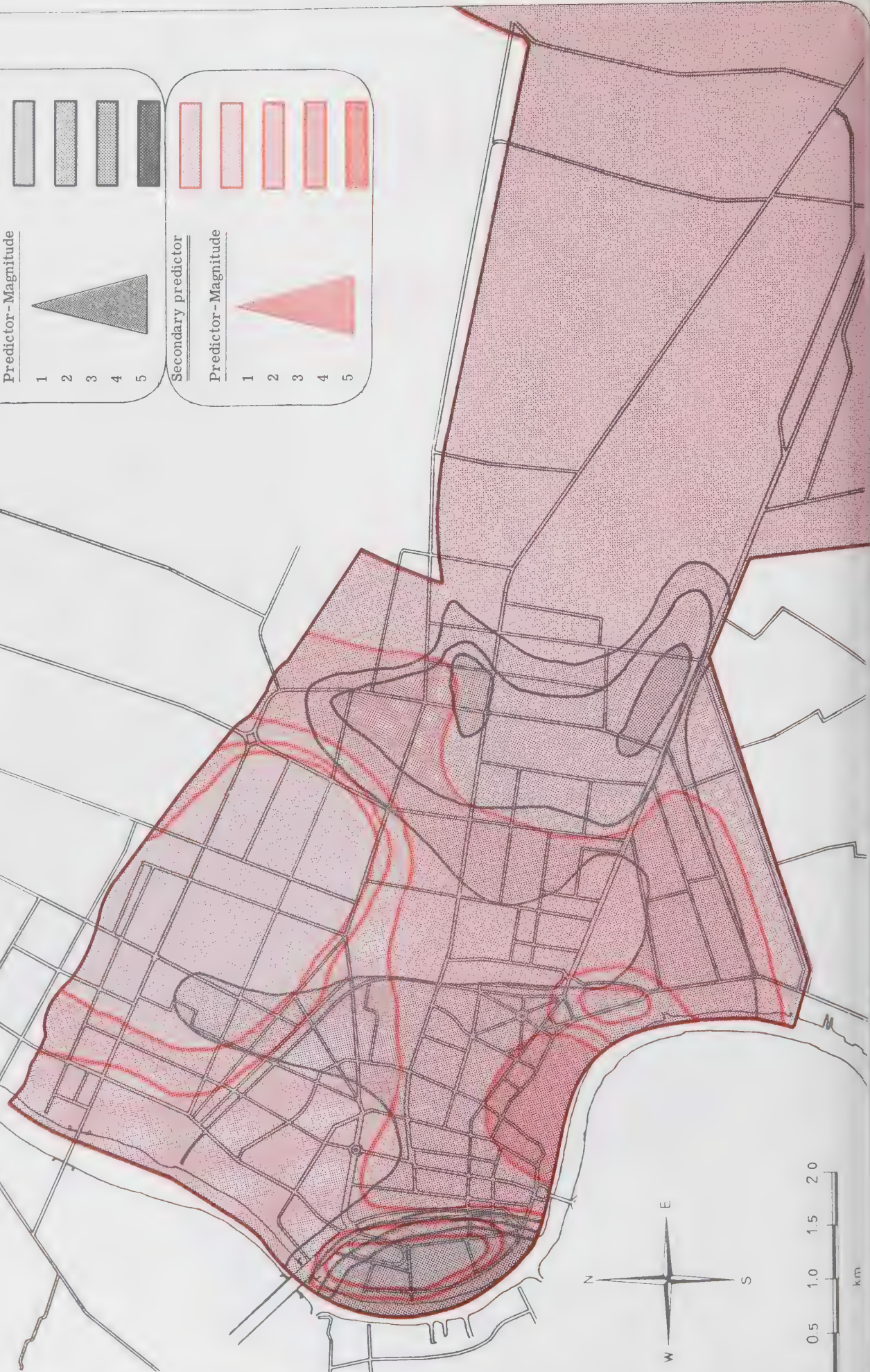
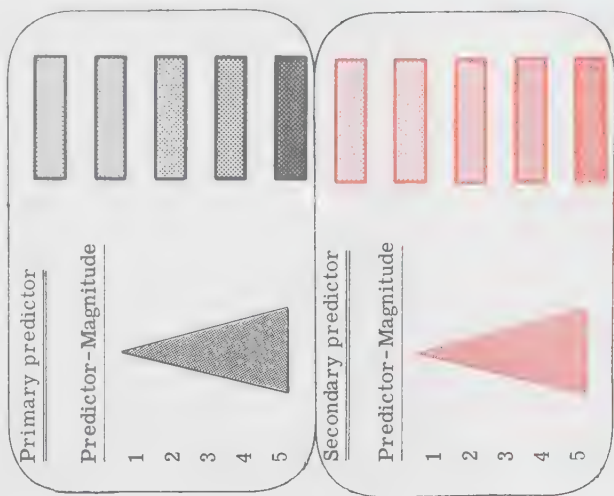
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Townscape predictors for the common mental picture 'perhaps Bangkok' as held by European package tourists

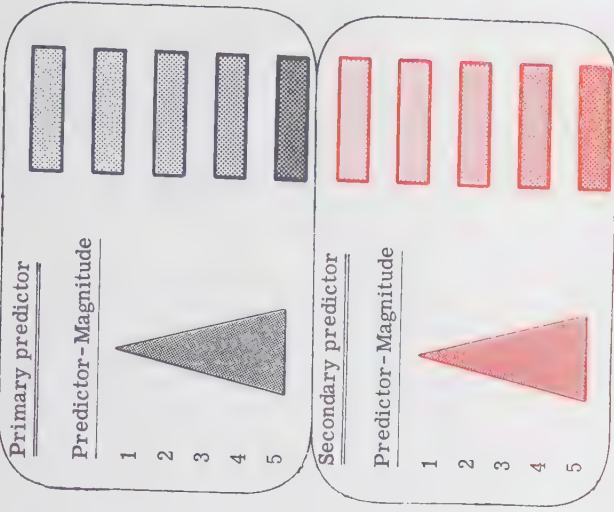
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TOWNSHIP PROMOTES FOR THE COMMON INTEREST OF INTERESTING,  
agreeable, beautiful, valuable subjects" as held by European package  
tourists

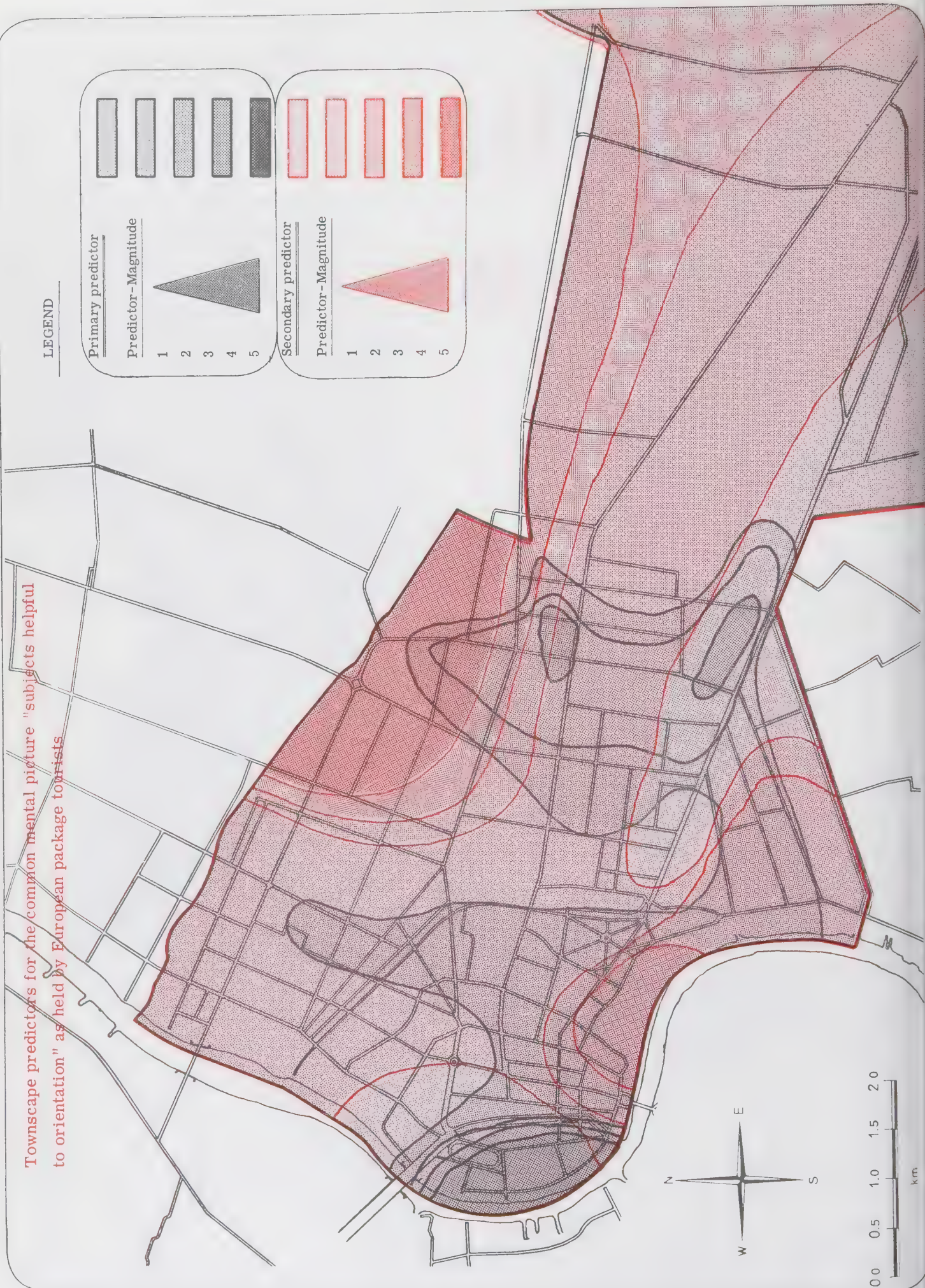
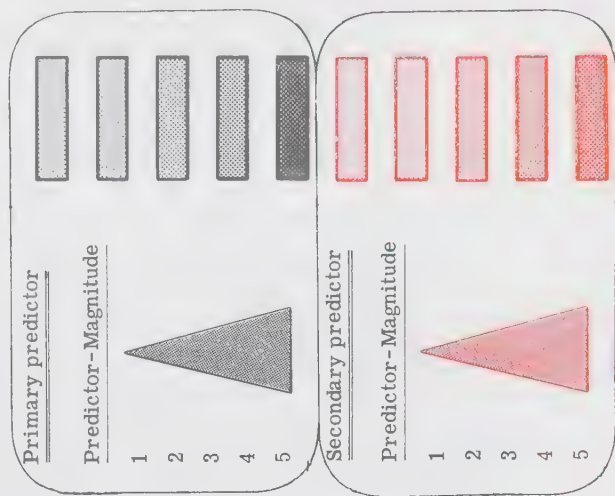
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Townscape predictors for the common mental picture "subjects helpful to orientation" as held by European package tourists

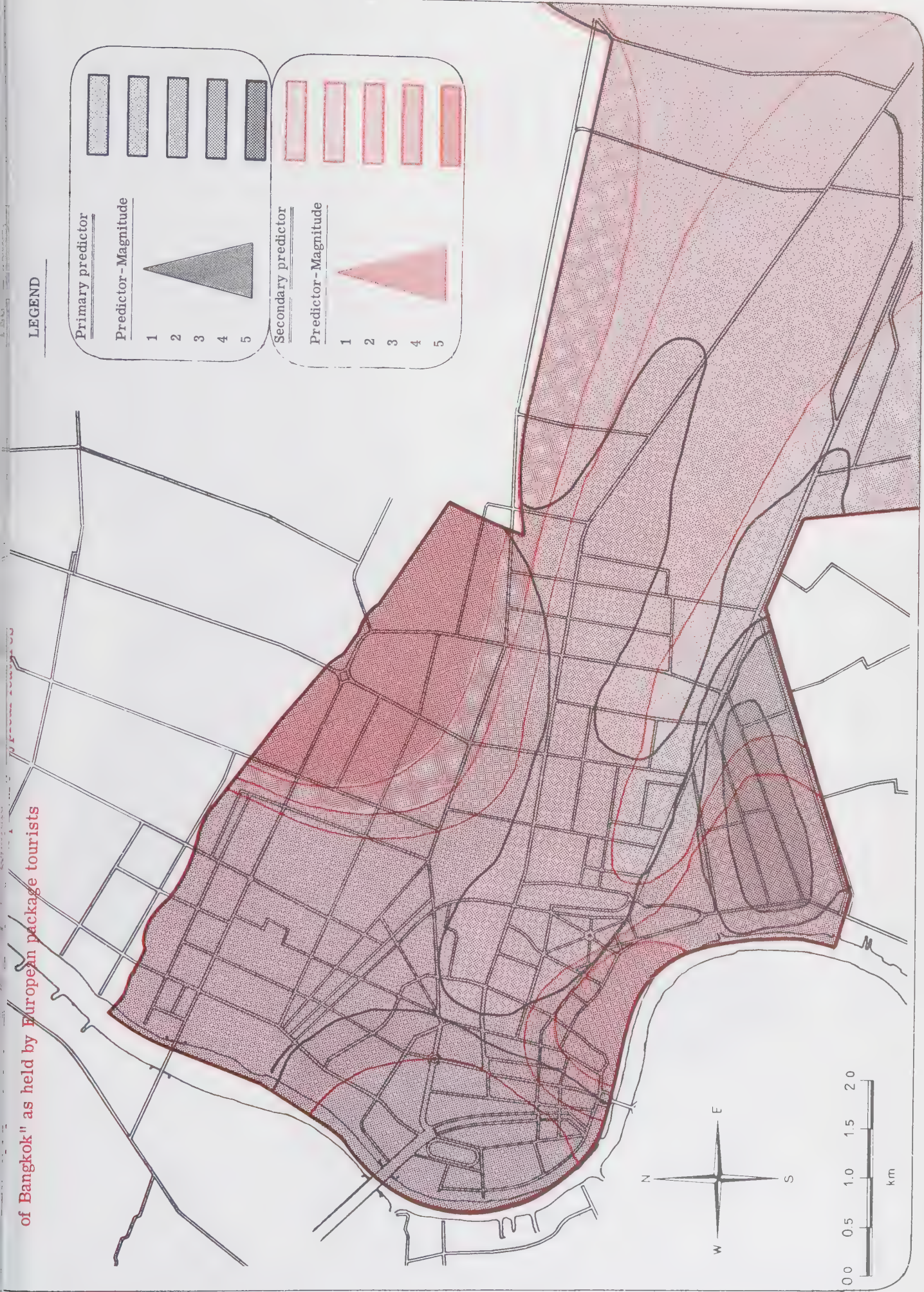
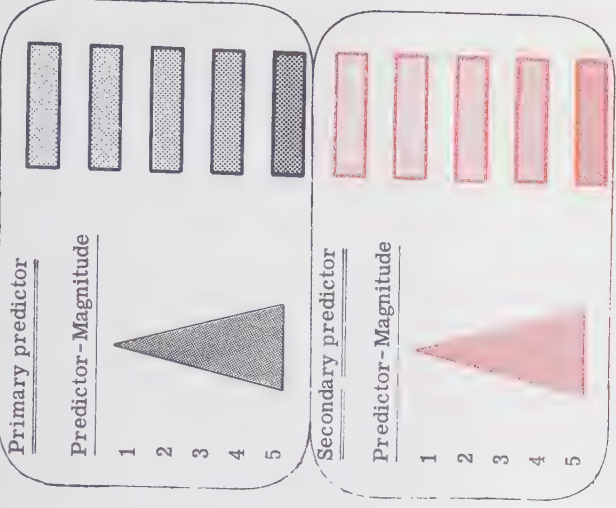
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of Bangkok" as held by European package tourists

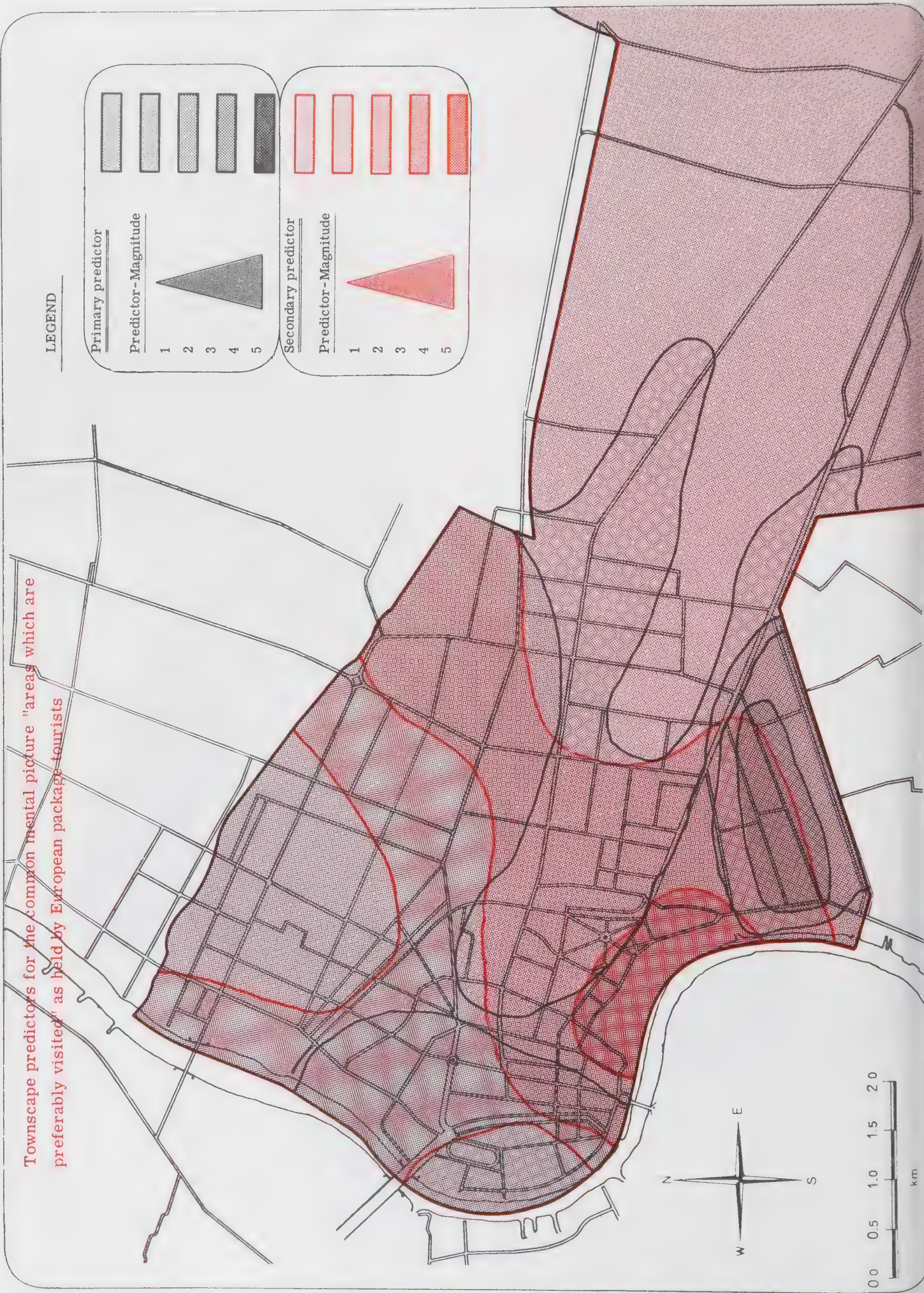
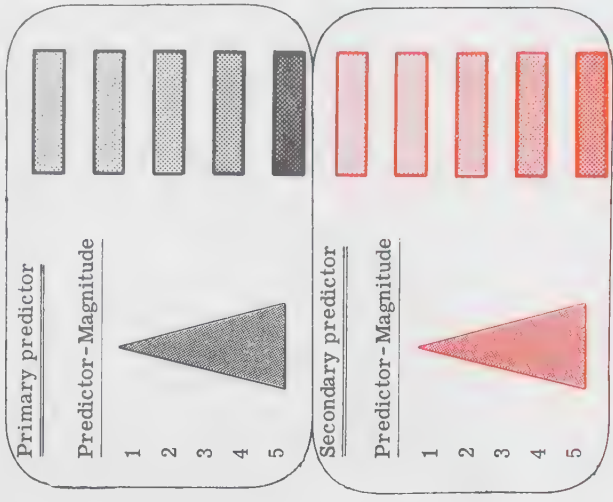
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Townscape predictors for the common mental picture "areas which are preferably visited" as held by European package tourists

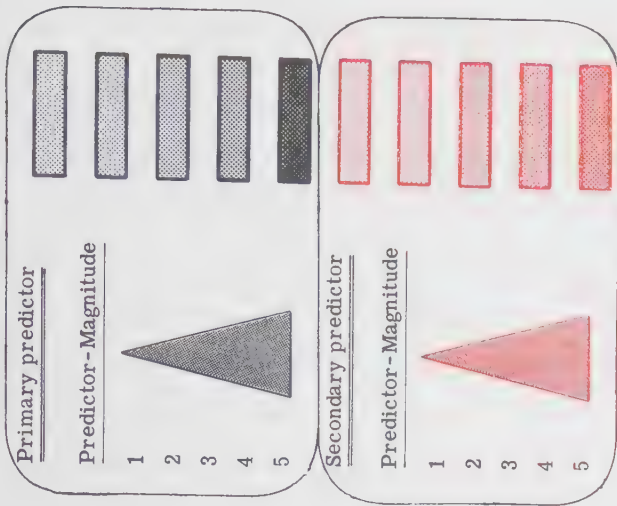
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Townscape predictors for the common mental picture "areas which are negatively recommended, i.e. not to visit them" as held by European package tourists

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## 5.2. Conclusions

The approach used in this investigation is an attempt to arrive at a set of empirically valid statements about group townscape assessment which can form the postulate in a theory yielding statements of spatial structure as logical outputs.

A set of assessment-hypotheses are proposed, based on research evidents; the aim being to contribute to the development of more objective criteria for analysis (criticism and evaluation) and synthesis (tourism planning).

### (1) Broad issues are

- the efficacy of the use of simulation of townscape assessment

"Photographs are useful in landscape-management decisions only if respondents rank pictures in approximately the same order as they rank the actual scenes. A recent experiment on people's reactions to actual scenes and to either 8- by 10-inch color photographs or projected color slides of those same scenes strongly suggests that, if the photograph or slide includes most of the variation in the scene, respondents react essentially the same way to both the scene and the photographs." (BRUSH and SHAFER, 1975, p. 179), and

- the efficacy of the use of the extent of intra-group agreement on a range of townscape assessment questions.

### (2) The Extents of Agreement vary considerably.

- Agreement on "for certain in Bangkok", "for certain not in Bangkok", "perhaps in Bangkok", "uniform areas within the townscape", is poor, whereas agreement on "central areas within the townscape", "borderlines and distinct areas within the townscape", "intensively used areas within the townscape", "subjects helpful to orientation", "typical features of Bangkok", and "areas which are negatively recommended, i.e. not to visit them", is more marked.
- The proportions of variance of the Extents of Agreement accounted for by photo-scene compositional and physical-functional predictors vary considerably from one to the other. The variance not accounted for has, therefore, to find other explanations.
- Groups of people have different images of the real world, a fact which is represented by the different proportions of variance not accounted for neither by photo-scene compositional nor by physical-functional variables.

Other predictors (attributes of personality, compare appendix 9) are more likely to account for this variance.

Man is a more significant, probably the crucial, variable (compare p. 54 ff.)



- (3) On the basis of these results, therefore, it seems that the consensus image of this city destination's environment held by European package tourists is, at least partly, structured in terms of five main dimensions (Sphere II factors 1, 2, 3, 7, 8) which describe the physical-functional position of the elements of the image and the contribution of the factors to the assessment.

These components may be regarded as superordinate, or higher-order, constructs of the image.<sup>1)</sup> The degree to which this structure varies with variation in characteristics of respondents could not be examined in this sort of study. However, in accordance with (2) we assume these characteristics of respondents to be more influential on the formation of the image than properties of the townscape. Knowledge of the visual-cultural and physical-functional attributes of the townscape is insufficient for an understanding of the image of its tourists. Their subjective perspective must also be taken into consideration.

- (4) Generally, the kind of magnitude (minor or dominant) of various photo-scene compositional variables did not appear to significantly modify the influence of the sampled photographs on consensus ratings.

- (5) The results of this study support the assumptions about the visual-cultural significance of primary attractions and density (cf. p. 170) in the townscape.

These elements are undoubtedly important, but their weighting may vary as the townscape context changes.

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<sup>1)</sup> We are of the opinion that "construct" is more appropriate than "concept" to term the contents aimed at in the townscape-assessment questions. However, the degree of abstraction varies.



The project has demonstrated to be useful in two ways:

- (1) In terms of substantive results, it can be used to produce image maps based on real world predictors.
- (2) In terms of methodology, the results presented demonstrate that it is possible to use photograph surrogate tests to study the images of the environment held by tourist-respondents.

The photograph test produces information on those elements of the image to which respondents attach consentaneously significance with regard to given constructs and concepts.

- According to the exploratory nature of this study, the constructs given had to consider different dimensions. In another study, such constructs should take into consideration in a more systematic way the range of semantic information, such as:
  - physical characteristics (physical, ecological, atmospherical, hydrospherical, land use, housing, physical communication networks etc.)
  - global-aesthetic characteristics (mood, character, informal aesthetic qualities and inferential attributes)
  - functionalistic characteristics (function of places, physical aspects related to behaviour of people involved in the setting)
  - autocentric characteristics (effects of the place
    - on oneself
    - on the role one has in the location)
  - personal characteristics (traits, training, desires, dispositions, relationships etc.)
  - social characteristics (community, community centers, demographic aspects, etc.)
- Three types of analysis have been used here.
  - Simple tabulations (not presented here) were used to demonstrate gross selection patterns and extents of agreement for all photographs presented.
  - Principal components analyses were then employed to enquire whether there was one or several patternings of each of the two spheres (link and real world) of predictors.
  - Finally, multiple regression analyses (semipartial correlations) were applied to test the relative strength of the independent influences of the leading variables as surrogates for the factors of each sphere. Not all of them have proven valid approaches to the difficult problem of relating common human response to objective features of townscape scenes. But different response may be a function of different abilities to respond to the environment, or of different perception of environment.
- Dichotomous responses as used here (selection or non-selection) do not indicate the magnitude, only the direction of responses.

We think that the problems of data collection in tourism do not allow the application of five or seven point-scales for photograph ratings. It is, however, selfevident that questions that probe more deeply and unveil people's fantasies could theoretically be of greater use.

Tourists cooperated, on the average, during twenty minutes (photograph surrogate test), while other researchers in tourism indicate seven to eight minutes as a maximum time during which a tourist is willing to be at their disposal.

- By means of the EoA multiple regression analysis is applicable. The EoA, thereby, is understood as "highest common factor" or amalgam of the perception of such elements as scenery, urbanization, socio-economic characteristics etc.

"Several leading researchers in the field of environmental perception have commented that regression analysis is too complicated for the average planner to use or understand. However complicated the technique may be, public preference for natural environments is itself a complex phenomenon. Not to use mathematics to examine this phenomenon would be like trying to fell a tree with a chain saw without turning on the power switch - one could hack away at the problem for a long time and not solve it because of failure to use the best tool available for the job. Multiple regression is particularly appropriate to the analysis of landscape preference because it takes into account not only the changes in a given landscape variable, but also the many subtle and unsuspected interrelations with other variables in the model." (BRUSH and SHAFER, 1975, pp. 181-182)

This method of analysis is not applicable to individual responses because of their dichotomous character.

- The mathematically substantiated demand for extensive samples is - in tourism - not easy to take into account (cf. GAENSSLEN, SCHUBOE, 1973, pp. 124-126).
- The standard deviations, i. e. approximately 68 % of all respondents fall within their limits (see appendix 8: standard deviations), are relatively large.
- The question of how many predictors are to be included - one simply has to include many predictors in order to prove seemingly strong relationships - is, with regard to the lack of theory, not easy to decide in this stage of research.
- The mathematical procedures used are not finally approved of yet (see p. 115).

### 5.3. Perspectives

We need to know far more than we do about consumption if we are to understand the nature and purpose of production, also in tourism.

This calls for data of a more factual kind. Confirmations of this study in other contexts would - at least for the next future - not be of marginal interest. To see a repetition in other townscapes would increase our descriptive understanding of the tourists' assessment of the complementary factors of their city destination.

Contradictions and similarities appear to be useful. If differences occur in the reaction to similar townscapes, a potential for deducing causal laws exists. By carefully comparing the pre-existing conditions in the different destinations and examining which ones differ, causal laws relating assessment and therefore image conditions to townscapes can be deduced.

But so far, we have little to build on. For any one particular place or set of places, meaning can vary among persons as a result of the interplay of a large number of causal influences, some conscious, others perhaps not. To fully understand environmental perception and assessment it is necessary to specify these influences. It has been hypothesized in this paper that common mental pictures may be influenced by relatively easily measured variables. The results are not particularly satisfying. They do not go far into specifying their relationships with the dependent. We used the townscape as a group of independent variables and asked how the city affects the image of European package tourists, i.e. the evaluation of random selected parts of the townscape with regard to fundamental constructs and concepts.

Further exploration should explain the position of other destinations with regard to their environmental image predictors or why certain destinations might deviate sharply from their expected position regarding such predictors.

We are of the opinion that, based on other case studies, a future induction of causal laws might be possible.

Therefore, environmental amenities and values in their quality as complementary factors may be given more appropriate consideration.

The main purpose of this thesis was to explain the common mental pictures concerning complementary factors, i.e. environmental amenities and values, of tourists in such a way that, at a future date, assessment maps (mental maps) may be drawn and interpreted without tests, i.e. link surrogates, at all.

The photographs as link-factors served only to assess such environmental (here called physical-functional) factors which can be assumed to be relevant for townscape assessment and for formation of the tourists' image.



This procedure is unavoidable when the actual state of this kind of research and the limited means are taken into consideration.

For this reason we attached so much importance to the detailed presentation of the predictors which were deduced. As for Sphere II-predictors, a review of substantive hypotheses is possible only by replication - internal, external and theoretical.

For Bangkok-Metropolis, the results presented are valid under consideration of the assumptions discussed.

It remains, by replications in other destinations, to proceed to generally valid causal laws. Close cooperation with other disciplines is, especially with regard to environmental-perception studies, indispensable.

We underscore the desirability of developing techniques of analysis for the systematic study of attitudes and of deriving strategies for comparing environmental attitudes in different destinations and among travelers of various backgrounds. Such techniques might lead to a large-scale survey of environmental attitudes, as an essential step in the identification, inventory and enhancement of environmental quality and resources, i. e. as tourism destinations.



## APPENDIX 1

Crosstabulated results: Socio-economic and touristic background data concerning all package tourists from Switzerland within the period of investigation, November 15, 1974 - June 20, 1975 (N = 4959).  
31 Tables.





TABLE 1 - 1

| Sex<br>Age, in years<br>▽ | Male  |        | N   |
|---------------------------|-------|--------|-----|
|                           | Male  | Female |     |
| DK/NA                     | 4.2 % | 4.1 %  | 206 |
| Over 64                   | 5.1   | 8.5    | 307 |
| 60 - 64                   | 4.8   | 7.6    | 283 |
| 55 - 59                   | 5.9   | 6.3    | 297 |
| 50 - 54                   | 6.0   | 9.7    | 356 |
| 45 - 49                   | 8.8   | 11.4   | 476 |
| 40 - 44                   | 8.7   | 8.1    | 420 |
| 35 - 39                   | 11.0  | 7.8    | 497 |
| 30 - 34                   | 17.5  | 12.8   | 793 |
| 25 - 29                   | 18.6  | 14.6   | 860 |
| 20 - 24                   | 8.3   | 8.0    | 405 |
| 15 - 19                   | 0.8   | 0.9    | 41  |
| Under 15                  | 0.3   | 0.5    | 18  |
| N 3381 1578               |       |        |     |
| 4959                      |       |        |     |
| Percentaging vertically.  |       |        |     |

TABLE 1 - 2

| Sex<br>Occupations<br>▽                                          | Male |        | Female |
|------------------------------------------------------------------|------|--------|--------|
|                                                                  | Male | Female |        |
| Production Workers, Transport Equipment Operat'gs, and Labourers | 22.6 | 10     |        |
| Agricultural, Forestry and Related Workers                       | 1.9  | 0.4    |        |
| Service Workers                                                  | 6.5  | 5.0    |        |
| Sales Workers                                                    | 12.5 | 5.1    |        |
| Clerical and Related Workers                                     | 9.5  | 20.2   |        |
| Administrative and Managerial Workers                            | 3.9  | 0.8    |        |
| Professional, Technical and Related Workers                      | 22.8 | 17.1   |        |
| Housewives / -men                                                | 0.2  | 16.6   |        |
| Students (all ages)                                              | 1.8  | 2.3    |        |
| New Workers seeking employment                                   | 0.1  |        |        |
| Retired                                                          | 1.1  | 1.7    |        |
| Occup. Unidentifiable                                            | 4.0  | 4.2    |        |
| NA                                                               | 12.9 | 32.6   |        |
| N 3381 1578 4959                                                 |      |        |        |
| Percentaging vertically.                                         |      |        |        |

TABLE 1 - 3

| Agencies<br>Programs<br>▽    | From Zurich |      | From CMB  |
|------------------------------|-------------|------|-----------|
|                              | 1           | 2    | 3         |
| 23 DK/NA                     | 6.9         | 0.6  | 2.2 12.5  |
| 22 Special packages          | 1.3         |      |           |
| 21 O                         |             |      | 26.8      |
| 20 N                         |             |      | 16.6      |
| 19 F - M                     |             |      | 15.5      |
| 18 Japan - Taiwan            | 1.1         |      |           |
| 17 Burma - Nepal             | 5.1         |      |           |
| 16 Rasa Sayang               | 0.2         |      |           |
| 15 Prinsendam                | 1.4         |      |           |
| 14 BKK-SIN-KL-Penang         | 1.4         |      |           |
| 13 BKK-Bali-SIN              | 5.9         |      |           |
| 12 Penang                    | 0.9         |      |           |
| 11 BKK-Penang                | 1.9         |      | 1.0       |
| 10 BKK-HKG                   | 5.4         |      | 3.0       |
| 9 BKK-HKG-Penang             | 3.2         |      |           |
| 8 BKK-HKG-Pattaya            | 5.7         | 10.4 | 1.5       |
| 7 BKK-Thailand Roundtrip     | 8.7         | 4.1  | 1.0 4.2   |
| 6 (BKK)-Pattaya              | 4.2         | 0.6  |           |
| 5 BKK-Pattaya                | 13.1        | 12.2 | 0.8 8.3   |
| 4 Only BKK, 3 and more weeks | 3.3         |      | 4.2       |
| 3 Only BKK, 1 or 2 weeks     | 52.0        | 44.8 | 25.2 41.6 |
| 2 Mini BKK/HKG               | 2.0         | 3.9  | 5.8 12.5  |
| 1 No Program-Code            | 10.0        |      |           |
| N 884 1231 2012 691 24 4842  |             |      |           |
| Percentaging vertically.     |             |      |           |

TABLE 1 - 4

| Sex<br>Δ<br>V            | Duration of stay<br>in Bangkok in days | Male | Female | Children | N    |
|--------------------------|----------------------------------------|------|--------|----------|------|
| 28                       |                                        | 0.3% | 0.1%   |          | 12   |
| 27                       |                                        |      |        |          |      |
| 26                       |                                        |      |        |          |      |
| 25                       |                                        | 0.1  |        |          | 5    |
| 24                       |                                        |      |        |          |      |
| 23                       |                                        |      |        |          |      |
| 22                       |                                        |      |        |          |      |
| 21                       |                                        | 1.6  | 0.6    |          | 63   |
| 20                       |                                        |      |        |          | 1    |
| 19                       |                                        |      |        |          | 9    |
| 18                       |                                        | 0.1  | 0.1    |          | 7    |
| 17                       |                                        | 0.1  | 0.3    |          | 7    |
| 16                       |                                        |      | 0.1    |          | 1    |
| 15                       |                                        | 0.1  | 0.3    |          | 10   |
| 14                       |                                        | 10.9 | 4.1    |          | 431  |
| 13                       |                                        | 0.1  | 0.1    |          | 4    |
| 12                       |                                        | 1.3  | 0.9    |          | 59   |
| 11                       |                                        | 0.7  | 1.0    |          | 40   |
| 10                       |                                        | 0.9  | 2.2    |          | 65   |
| 9                        |                                        | 0.5  | 0.8    |          | 30   |
| 8                        |                                        | 1.9  | 3.8    |          | 123  |
| 7                        |                                        | 54.0 | 39.3   | 37.5%    | 2435 |
| 6                        |                                        | 4.7  | 9.0    | 18.8     | 303  |
| 5                        |                                        | 3.1  | 4.8    |          | 179  |
| 4                        |                                        | 8.2  | 14.4   |          | 502  |
| 3                        |                                        | 4.2  | 6.8    |          | 247  |
| 2                        |                                        | 3.1  | 5.1    | 6.3      | 186  |
| 1                        |                                        | 4.1  | 6.1    | 37.5     | 240  |
| N 3370 1573 16           |                                        |      |        |          | 4959 |
| Percentaging vertically. |                                        |      |        |          |      |

TABLE 1 - 5

| Sex<br>Δ<br>V            | Number of stays<br>in Bangkok | Male | Female | Children | N    |
|--------------------------|-------------------------------|------|--------|----------|------|
| 5                        |                               |      | 0.1%   |          | 2    |
| 4                        |                               | 0.1% | 0.2    |          | 7    |
| 3                        |                               | 1.2  | 2.6    |          | 79   |
| 2                        |                               | 9.7  | 17.2   | 18.8%    | 595  |
| 1                        |                               | 89.0 | 80.0   | 81.2     | 4276 |
| N 3370 1573 16           |                               |      |        |          | 4959 |
| Percentaging vertically. |                               |      |        |          |      |

TABLE 1 - 6

| Sex<br>Δ<br>V            | Hotels | Male | Female | Children | N    |
|--------------------------|--------|------|--------|----------|------|
| 16                       |        | 0.1% | 0.3%   |          | 8    |
| 15                       |        |      | 0.2    |          | 4    |
| 14                       |        | 2.3  | 1.5    |          | 101  |
| 13                       |        | 2.0  | 1.5    |          | 92   |
| 12                       |        | 16.3 | 8.6    |          | 684  |
| 11                       |        | 3.4  | 1.1    | 6.3%     | 135  |
| 10                       |        | 15.5 | 8.3    | 25.0     | 657  |
| 9                        |        | 5.3  | 3.7    |          | 235  |
| 8                        |        | 4.4  | 3.8    |          | 207  |
| 7                        |        | 7.9  | 6.6    | 12.5     | 372  |
| 6                        |        | 15.9 | 17.9   |          | 816  |
| 5                        |        | 4.2  | 7.6    | 12.5     | 262  |
| 4                        |        | 17.5 | 30.4   | 31.2     | 1071 |
| 3                        |        | 0.1  | 0.2    |          | 7    |
| 2                        |        | 2.5  | 4.2    |          | 149  |
| 1                        |        | 2.6  | 4.4    | 12.5     | 159  |
| N 3370 1573 16           |        |      |        |          | 4959 |
| Percentaging vertically. |        |      |        |          |      |



TABLE 1 - 7

| Sex ▷<br>Residence<br>▽  | Male | Female | Children | N    |
|--------------------------|------|--------|----------|------|
| DK/NA                    | 5.3% | 3.2%   |          | 230  |
| Non Swiss                | 28.5 | 37.7   | 18.8%    | 1543 |
| Lucerne                  | 1.0  | 1.1    |          | 51   |
| Biel                     | 1.0  | 0.9    | 6.3      | 47   |
| St. Gall                 | 1.1  | 0.9    |          | 52   |
| Lausanne                 | 1.7  | 2.4    |          | 94   |
| Geneva                   | 3.2  | 4.2    |          | 174  |
| Berne                    | 2.6  | 3.2    |          | 138  |
| Basle                    | 4.0  | 3.5    |          | 192  |
| Zurich                   | 7.5  | 7.0    |          | 363  |
| Liechtenstein            | 0.4  | 0.1    |          | 13   |
| Aargau                   | 3.9  | 2.5    |          | 170  |
| Zug                      | 0.8  | 0.8    |          | 40   |
| Glaris                   | 0.2  | 0.3    |          | 12   |
| Neuchatel                | 1.3  | 1.5    |          | 68   |
| Fribourg, French         | 1.0  | 0.6    |          | 44   |
| Fribourg, German         | 0.1  |        |          | 4    |
| Appenzell                | 0.3  | 0.2    |          | 14   |
| Schaffhausen             | 0.2  | 0.2    |          | 10   |
| Ticino                   | 2.0  | 2.5    | 6.3      | 108  |
| Geneva                   | 0.6  | 0.8    | 12.5     | 34   |
| Vaud                     | 7.1  | 3.7    | 12.5     | 302  |
| Valais, French           | 1.6  | 0.3    |          | 59   |
| Valais, German           | 0.1  |        |          | 3    |
| Grisons                  | 0.9  | 0.6    |          | 40   |
| St. Gall                 | 2.2  | 2.0    | 6.3      | 105  |
| Thurgau                  | 1.8  | 1.3    |          | 80   |
| Solothurn                | 1.6  | 1.5    | 6.3      | 80   |
| Basle                    | 2.7  | 2.2    |          | 126  |
| Uri, Schwyz, Unterwalden | 1.1  | 0.7    |          | 47   |
| Lucerne                  | 1.1  | 1.3    |          | 56   |
| Berne, French            | 0.6  | 0.6    | 6.3      | 30   |
| Berne, German            | 4.6  | 3.3    |          | 206  |
| Zurich                   | 8.1  | 9.1    | 25.0     | 422  |
| N                        | 3370 | 1573   | 16       | 4959 |

TABLE 1 - 8

| Sex ▷<br>Type of prolongation<br>▽        | Male | Female | Children | N    |
|-------------------------------------------|------|--------|----------|------|
| Special package                           | 0.2% | 0.1%   |          | 8    |
| Prolongation with and without arrangement | 0.3  | 0.3    |          | 15   |
| Prolongation with arrangement             | 10.7 | 16.6   | 12.5%    | 624  |
| Prolongation without arrangement          | 9.7  | 6.5    | 18.8     | 432  |
| Standard program                          | 79.1 | 76.5   | 68.8     | 3880 |
| N                                         | 3370 | 1573   | 16       | 4959 |
| Percentaging vertically.                  |      |        |          |      |

TABLE 1 - 9

| Sex ▷<br>Point of embarkation<br>▽ | Male | Female | Children | N    |
|------------------------------------|------|--------|----------|------|
| DK/NA                              | 0.4% | 0.6%   |          | 24   |
| From CMB                           | 11.0 | 19.9   |          | 690  |
| From ZRH                           | 88.6 | 79.5   | 100.0%   | 4245 |
| N                                  | 3370 | 1573   | 16       | 4959 |
| Percentaging vertically.           |      |        |          |      |

TABLE 1 - 10

| Sex ▷<br>Room-Type<br>▽  | Male | Female | Children | N    |
|--------------------------|------|--------|----------|------|
| Triple                   | 3.1  | 2.5    | 43.8     | 151  |
| ½ Double                 | 2.8  | 3.0    |          | 141  |
| Double                   | 61.1 | 78.6   | 43.8     | 3302 |
| Single                   | 33.0 | 15.9   | 12.5     | 1365 |
| N                        | 3370 | 1573   | 16       | 4959 |
| Percentaging vertically. |      |        |          |      |

TABLE 1 - 11

| Age, in years ▽<br>Number of stays<br>in Bangkok<br>▽ | under 15 | 15 - 19 | 20 - 24 | 25 - 29 | 30 - 34 | 35 - 39 | 40 - 44 | 45 - 49 | 50 - 54 | 55 - 59 | 60 - 64 | over 64 | DK/NA |      |
|-------------------------------------------------------|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-------|------|
| 5                                                     |          |         |         |         |         |         |         |         | 0.3     |         |         |         |       |      |
| 4                                                     |          |         |         |         |         | 0.4     |         | 0.2     | 0.3     |         | 0.4     | 0.3     |       |      |
| 3                                                     | 6.5      | 4.7     | 0.5     | 0.2     | 1.5     | 1.0     | 0.7     | 2.5     | 3.1     | 1.7     | 1.9     | 4.2     | 1.4   |      |
| 2                                                     | 9.7      | 2.3     | 6.4     | 9.9     | 10.8    | 11.1    | 14.0    | 15.1    | 18.8    | 19.5    | 19.1    | 22.5    | 6.8   |      |
| 1                                                     | 83.9     | 93.0    | 93.1    | 89.6    | 87.4    | 87.5    | 85.2    | 82.1    | 77.5    | 78.8    | 78.7    | 73.0    | 91.8  |      |
| N                                                     | 31       | 43      | 405     | 860     | 793     | 497     | 420     | 476     | 356     | 297     | 267     | 307     | 207   | 4959 |

Percentaging vertically.

TABLE 1 - 12

| Sex ▽<br>Point of embrakation<br>▽ | under 15 | 15 - 19 | 20 - 24 | 25 - 29 | 30 - 34 | 35 - 39 | 40 - 44 | 45 - 49 | 50 - 54 | 55 - 59 | 60 - 64 | over 64 | DK/NA |      |
|------------------------------------|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-------|------|
| DK/NA                              | 3.2      |         | 0.2     | 0.6     |         | 0.8     | 0.2     | 0.4     | 0.6     | 1.0     | 1.1     | 0.3     | 0.5   |      |
| From CMB                           | 3.2      | 11.6    | 9.9     | 12.3    | 11.9    | 9.9     | 15.0    | 15.8    | 16.3    | 14.1    | 17.6    | 18.9    | 25.1  |      |
| From ZRH                           | 93.6     | 88.4    | 89.9    | 87.1    | 88.1    | 89.3    | 84.8    | 83.8    | 83.1    | 84.9    | 81.3    | 80.8    | 74.4  |      |
| N                                  | 31       | 43      | 405     | 860     | 793     | 497     | 420     | 476     | 356     | 297     | 267     | 307     | 207   | 4959 |

Percentaging vertically.

TABLE 1 - 13

| Age, in years ▽<br>Room-Type<br>▽ | under 15 | 15 - 19 | 20 - 24 | 25 - 29 | 30 - 34 | 35 - 39 | 40 - 44 | 45 - 49 | 50 - 54 | 55 - 59 | 60 - 64 | over 64 | DK/NA |      |
|-----------------------------------|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-------|------|
| Triple                            | 22.6     | 14.0    | 4.9     | 3.4     | 3.3     | 2.0     | 2.6     | 1.9     | 2.5     | 2.0     | 1.5     | 0.9     | 5.3   |      |
| ½ Double                          |          | 2.3     | 4.2     | 3.1     | 3.4     | 2.0     | 2.6     | 1.9     | 2.2     | 3.7     | 2.2     | 2.8     | 2.4   |      |
| Double                            | 58.1     | 60.5    | 60.4    | 63.4    | 64.1    | 66.4    | 66.7    | 70.2    | 73.9    | 68.7    | 72.3    | 65.3    | 72.5  |      |
| Single                            | 19.4     | 23.3    | 30.6    | 30.1    | 29.3    | 29.6    | 28.1    | 26.1    | 21.3    | 25.6    | 24.0    | 30.9    | 19.8  |      |
| N                                 | 31       | 43      | 405     | 860     | 793     | 497     | 420     | 476     | 356     | 297     | 267     | 307     | 207   | 4959 |

Percentaging vertically.

TABLE 1 - 14

| Age, in years ▽<br>Programs ▽ | under 15 | 15 - 19 | 20 - 24 | 25 - 29 | 30 - 34 | 35 - 39 | 40 - 44 | 45 - 49 | 50 - 54 | 55 - 59 | 60 - 64 | over 64 | DK/NA |
|-------------------------------|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-------|
| 22 DK/NA                      |          |         | 2.0     | 3.6     | 2.3     | 2.8     | 1.6     | 2.9     | 2.0     | 2.4     | 1.9     | 2.0     |       |
| 21 Special packages           |          | 7.0     | 3.7     | 3.4     | 1.7     | 4.4     | 1.2     | 1.6     | 3.4     | 2.7     | 3.4     | 5.2     | 2.9   |
| 20 O                          |          |         | 2.0     | 2.7     | 3.7     | 2.6     | 4.5     | 3.6     | 6.2     | 3.4     | 7.5     | 3.6     | 6.3   |
| 19 N                          | 3.2      | 7.0     | 2.9     | 2.5     | 1.4     | 2.6     | 2.1     | 2.5     | 2.8     | 2.0     | 1.5     | 2.3     | 5.3   |
| 18 F - M                      |          |         | 1.5     | 2.3     | 1.9     | 1.4     | 2.1     | 3.8     | 2.2     | 2.0     | 1.9     | 4.2     | 0.5   |
| 17 Japan - Taiwan             |          |         | 0.7     | 0.1     | 0.3     | 0.4     | 0.2     | 0.6     | 0.8     | 0.3     | 0.8     | 1.3     |       |
| 16 Burma - Nepal              | 3.2      | 2.3     | 1.0     | 1.0     | 1.5     | 1.8     | 3.1     | 2.1     | 3.7     | 4.7     | 3.8     | 3.6     | 1.0   |
| 15 Rasa Sayang                |          |         |         |         |         | 0.2     |         | 0.6     | 0.3     | 0.3     |         |         |       |
| 14 Prinsendam                 |          |         |         | 0.1     |         |         | 0.5     | 0.6     | 1.4     | 2.4     | 1.9     | 2.3     |       |
| 13 BKK-SIN-KL-Penang          |          |         |         | 0.5     | 0.1     | 0.4     | 0.5     | 1.1     | 2.2     | 1.0     | 0.4     | 0.7     |       |
| 12 BKK-Bali-SIN               | 6.5      | 4.7     | 0.7     | 0.5     | 0.9     | 1.6     | 2.6     | 2.7     | 3.1     | 2.0     | 6.8     | 10.1    | 1.0   |
| 11 Penang                     |          |         | 0.5     | 0.2     |         |         |         |         | 0.3     |         | 0.8     | 1.3     |       |
| 10 BKK-Penang                 |          |         |         | 0.4     | 0.9     | 1.2     | 1.4     | 0.2     | 0.3     | 0.3     | 0.8     | 1.0     | 0.5   |
| 9 BKK-HKG                     |          | 2.3     | 1.2     | 1.1     | 1.5     | 3.4     | 2.3     | 1.7     | 1.4     | 2.4     | 1.1     | 2.6     | 2.0   |
| 8 BKK-HKG-Penang              |          |         | 0.2     | 0.2     | 1.0     | 1.2     | 2.1     | 2.7     | 3.1     | 2.0     | 1.5     | 1.3     | 0.5   |
| 7 BKK-HKG-Pattaya             |          | 4.7     | 3.4     | 4.0     | 6.1     | 4.6     | 6.3     | 6.8     | 7.4     | 7.1     | 6.4     | 9.1     | 7.3   |
| 6 BKK-Thailand Roundtrip      | 2.3      | 2.9     | 3.3     | 5.8     | 4.0     | 3.0     | 4.6     | 5.6     | 4.7     | 5.6     | 5.9     | 1.0     |       |
| 5 (BKK)-Pattaya               | 22.6     | 4.7     | 1.0     | 1.4     | 1.0     | 2.6     | 2.8     | 1.7     | 3.1     | 1.4     | 1.5     | 0.7     | 1.0   |
| 4 BKK-Pattaya                 | 9.7      | 4.6     | 11.5    | 9.8     | 6.8     | 10.0    | 7.3     | 8.0     | 6.8     | 9.4     | 4.9     | 5.3     | 12.1  |
| 3 Only BKK, 3 and more weeks  |          | 0.9     | 0.9     | 1.8     | 0.4     | 0.7     | 0.6     | 0.6     | 1.0     | 0.8     | 0.7     |         |       |
| 2 Only BKK, 1 or 2 weeks      | 41.9     | 34.9    | 42.0    | 41.7    | 39.4    | 33.8    | 34.8    | 30.4    | 26.6    | 31.9    | 21.2    | 33.0    |       |
| 1 No Program-Code             | 12.9     | 25.6    | 22.0    | 20.2    | 22.1    | 20.3    | 20.9    | 21.1    | 16.6    | 22.6    | 15.0    | 15.7    | 25.7  |
| N                             | 31       | 43      | 410     | 840     | 791     | 497     | 426     | 475     | 356     | 296     | 266     | 306     | 206   |

4943

Percentaging vertically.

### Percentaging vertically.



TABLE 1 - 16

| Age, in years ▽<br>Occupations ▽                                            | under 15 | 15 - 19 | 20 - 24 | 25 - 29 | 30 - 34 | 35 - 39 | 40 - 44 | 45 - 49 | 50 - 54 | 55 - 59 | 60 - 64 | over 64 | DK/NA |
|-----------------------------------------------------------------------------|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-------|
| Production and Related Workers, Transport Equipment Operators and Labourers | 3.7      | 11.7    | 28.9    | 22.0    | 18.6    | 18.4    | 13.2    | 11.0    | 10.4    | 11.0    | 8.0     | 2.5     | 10.6  |
| Agricultural, Forestry and Related Workers                                  |          | 7.0     | 2.4     | 2.2     | 0.4     | 1.1     | 1.1     | 0.2     | 1.2     | 2.1     | 1.9     | 1.7     | 3.4   |
| Service Workers                                                             |          | 7.0     | 8.9     | 5.8     | 6.5     | 7.0     | 9.0     | 6.3     | 2.9     | 6.4     | 2.8     | 0.7     | 8.4   |
| Sales Workers                                                               | 6.7      |         | 5.9     | 7.4     | 10.1    | 11.4    | 14.3    | 15.9    | 11.2    | 11.0    | 11.2    | 6.8     | 2.5   |
| Clerical and Related Workers                                                | 3.7      | 9.3     | 20.0    | 18.6    | 14.2    | 11.6    | 9.0     | 12.0    | 8.0     | 11.0    | 8.4     | 3.0     | 5.9   |
| Administrative and Managerial Workers                                       |          |         | 0.2     | 1.6     | 2.5     | 3.3     | 2.1     | 5.3     | 3.9     | 6.0     | 5.2     | 2.1     | 2.5   |
| Professional Technical and Related Workers                                  | 13.3     | 2.4     | 10.4    | 23.2    | 25.9    | 23.8    | 23.1    | 20.0    | 12.5    | 16.3    | 15.2    | 18.4    | 15.5  |
| Housewives / -men                                                           | 3.3      |         | 0.2     | 1.3     | 3.1     | 4.3     | 6.1     | 8.9     | 9.1     | 8.5     | 10.4    | 7.9     | 4.7   |
| Students (all ages)                                                         | 43.3     | 41.9    | 8.6     | 3.0     | 1.4     | 0.2     | 0.4     |         |         |         |         |         |       |
| New Workers seeking employment                                              |          | 4.6     | 0.2     |         |         |         |         |         |         |         |         |         |       |
| Retired                                                                     |          |         |         |         |         |         |         | 0.9     | 0.9     | 1.4     | 4.4     | 11.6    |       |
| Occup. Unidentifiable                                                       | 6.7      | 4.6     | 5.7     | 3.0     | 5.7     | 2.0     | 3.7     | 3.1     | 5.9     | 6.7     | 3.6     | 0.7     | 3.4   |
| NA                                                                          | 20.0     | 11.7    | 7.9     | 11.8    | 11.6    | 16.6    | 18.7    | 16.1    | 24.2    | 19.5    | 29.2    | 44.5    | 67.6  |

|   |    |    |     |     |     |     |     |     |     |     |     |     |     |      |
|---|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| N | 31 | 44 | 405 | 860 | 793 | 497 | 420 | 476 | 356 | 297 | 267 | 306 | 207 | 4959 |
|---|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|

Percentaging vertically.

Percentaging vertically.

TABLE 1 - 17

| Age, in years ▽<br>Type of prolongation<br>▽ | under 15 | 15 - 19 | 20 - 24 | 25 - 29 | 30 - 34 | 35 - 39 | 40 - 44 | 45 - 49 | 50 - 54 | 55 - 59 | 60 - 64 | over 64 | DK/NA |
|----------------------------------------------|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-------|
| Special package                              |          |         | 0.5     | 0.2     | 0.3     | 0.4     |         |         |         |         |         |         |       |
| Prolongation with and without arrangement    |          |         |         | 0.6     | 0.5     | 0.2     | 0.2     | 0.4     |         |         | 0.3     | 0.5     |       |
| Prolongation with arrangement                | 25.8     | 7.0     | 6.9     | 9.1     | 12.4    | 13.7    | 12.6    | 15.3    | 19.9    | 14.5    | 15.0    | 16.9    | 6.3   |
| Prolongation without arrangement             | 32.3     | 14.0    | 10.4    | 12.7    | 10.3    | 9.0     | 6.9     | 4.0     | 5.3     | 6.7     | 7.1     | 7.8     | 5.3   |
| Standard program                             | 41.9     | 79.0    | 82.2    | 77.4    | 76.5    | 78.0    | 80.2    | 80.3    | 74.7    | 78.8    | 77.9    | 74.9    | 87.9  |
| N                                            | 31       | 43      | 405     | 860     | 793     | 497     | 420     | 476     | 356     | 297     | 267     | 307     | 207   |
|                                              |          |         |         |         |         |         |         |         |         |         |         |         | 4959  |

Percentaging vertically.

TABLE 1 - 18

| Nationality ▽<br>Agencies<br>▽ | Switzerland | German<br>Federal Republic | Austria | Liechtenstein | France | Belgium | Luxemburg | Netherlands | Italy | Spain | Great Britain | Stateless | DK/NA | N    |
|--------------------------------|-------------|----------------------------|---------|---------------|--------|---------|-----------|-------------|-------|-------|---------------|-----------|-------|------|
| DK/NA                          | 58.3        | 4.2                        |         |               | 8.3    | 12.5    |           |             |       | 12.5  |               |           |       | 24   |
| From CMB                       | 50.1        | 5.2                        | 3.1     | 0.3           | 24.3   | 9.8     |           | 1.0         | 0.4   |       | 0.4           | 2.4       | 3.4   | 676  |
| 3                              | 59.7        | 16.7                       | 14.7    | 0.2           | 3.1    | 2.3     | 0.1       | 0.6         | 5.1   | 0.2   | 0.4           | 0.2       |       | 1907 |
| 2                              | 65.5        | 4.2                        | 2.6     | 0.6           | 9.3    | 8.9     | 0.2       | 1.4         | 2.9   | 1.9   | 0.2           | 0.3       |       | 1234 |
| 1                              | 79.8        | 7.6                        | 1.1     | 0.3           | 5.1    | 0.2     |           | 0.3         | 2.0   | 0.3   | 0.8           | 0.3       |       | 884  |
| N                              | 3121        | 475                        | 343     | 15            | 387    | 225     | 5         | 38          | 154   | 33    | 20            | 26        | 23    | 4725 |

Percentaging horizontally.

"Others" excluded from the Table .

TABLE 1 - 19

| Nationality Programs<br>▽    | Switzerland | German<br>Federal Republic | Austria | Liechtenstein | France | Belgium | Luxemburg | Netherlands | Italy | Spain | Great Britain | Stateless | DK/NA |
|------------------------------|-------------|----------------------------|---------|---------------|--------|---------|-----------|-------------|-------|-------|---------------|-----------|-------|
| 23 DK/NA                     | 3.1         | 0.8                        | 1.2     |               | 1.0    | 0.4     |           | 0.2         | 1.9   | 6.3   |               |           |       |
| 22 Special packages          | 4.5         | 0.4                        | 0.3     |               | 0.3    |         |           |             |       |       |               |           |       |
| 21 O                         | 2.4         | 0.8                        | 0.9     |               | 15.9   | 7.3     |           |             | 1.3   |       | 61.3          | 30.4      |       |
| 20 N                         | 1.4         | 1.9                        | 0.6     | 13.3          | 8.5    | 4.7     |           |             | 0.6   |       |               | 43.5      |       |
| 19 F - M                     | 1.2         | 0.2                        | 0.6     |               | 9.7    | 7.3     |           | 1.7         | 2.5   |       |               |           |       |
| 18 Japan - Taiwan            | 0.3         | 1.3                        | 1.7     |               |        |         |           |             |       |       |               |           |       |
| 17 Burma - Nepal             | 1.1         | 6.1                        | 4.7     |               | 1.0    | 1.7     |           |             | 6.9   |       |               |           |       |
| 16 Rasa Sayang               |             | 0.6                        | 0.3     |               |        | 0.4     |           |             |       |       |               |           |       |
| 15 Prinsendam                | 0.6         | 1.3                        | 1.5     |               |        | 0.9     |           |             |       |       |               |           |       |
| 14 BKK-SIN-KL-Penang         | 0.5         | 1.5                        | 1.2     |               |        | 0.4     |           |             |       |       |               |           |       |
| 13 BKK-Bali-SIN              | 1.3         | 3.4                        | 3.8     |               | 0.8    | 6.0     |           |             | 15.6  |       |               |           |       |
| 12 Penang                    | 0.3         |                            |         | 6.7           |        | 0.9     |           |             |       |       |               |           |       |
| 11 BKK-Penang                | 0.4         | 0.6                        |         |               | 0.5    | 4.3     |           |             | 0.6   |       |               |           |       |
| 10 BKK-HKG                   | 1.3         | 1.1                        | 1.2     |               | 3.6    | 3.9     |           | 0.7         | 2.5   | 6.3   |               | 3.2       | 17.4  |
| 9 BKK-HKG-Penang             | 0.6         | 1.9                        | 5.0     |               | 0.5    | 0.4     |           | 0.2         | 1.9   | 3.1   | 8.3           |           |       |
| 8 BKK-HKG-Pattaya            | 6.7         | 5.6                        | 9.9     |               | 2.3    | 4.7     | 20.0      | 0.2         | 1.3   |       |               |           |       |
| 7 BKK-Thailand Roundtrip     | 2.8         | 4.5                        | 1.8     |               | 6.9    | 15.9    | 20.0      | 2.4         | 7.6   |       |               |           |       |
| 6 (BKK)-Pattaya              | 2.2         | 1.5                        | 2.3     |               |        |         |           |             | 0.6   | 6.3   |               |           |       |
| 5 BKK-Pattaya                | 8.7         | 9.0                        | 11.7    |               | 4.1    | 3.4     |           | 0.5         | 14.4  |       |               |           |       |
| 4 Only BKK, 3 and more weeks | 1.1         |                            | 0.6     |               | 0.3    | 1.7     |           |             | 1.3   |       |               |           |       |
| 3 Only BKK, 1 or 2 weeks     | 33.6        | 42.1                       | 47.6    | 60.0          | 30.3   | 23.6    | 40.0      | 3.4         | 27.0  | 56.4  | 50.0          | 19.4      |       |
| 1 No Program-Code            | 25.7        | 15.4                       | 3.5     | 20.0          | 14.4   | 12.0    |           | 0.7         | 14.4  | 12.5  | 29.2          | 14.3      | 16.1  |

|   |      |     |     |    |     |     |   |    |     |    |    |    |    |      |
|---|------|-----|-----|----|-----|-----|---|----|-----|----|----|----|----|------|
| N | 3121 | 475 | 343 | 15 | 387 | 225 | 5 | 38 | 154 | 33 | 20 | 26 | 23 | 4865 |
|---|------|-----|-----|----|-----|-----|---|----|-----|----|----|----|----|------|

Percentaging vertically.

"Others"excluded from Table: N<sub>tot</sub> = 4865, not 4959.





TABLE 1 - 22

| Occupations<br>Types of prolongation<br>▽       | NA   | Occup. Unidentifiable | Retired | New Workers<br>seeking employment | Students (all ages) | Housewives /<br>-men | Professional Technical<br>and Related Workers | Administrative and<br>Managerial Workers | Clerical and<br>Related Workers | Sales Workers | Service Workers | Agricultural, Forestry<br>and Related Workers | Production and Related<br>Workers, Transport<br>Equipment Operators<br>and La bourers |      |
|-------------------------------------------------|------|-----------------------|---------|-----------------------------------|---------------------|----------------------|-----------------------------------------------|------------------------------------------|---------------------------------|---------------|-----------------|-----------------------------------------------|---------------------------------------------------------------------------------------|------|
| Special packages                                | 0.1  |                       |         |                                   |                     | 0.4                  | 0.5                                           |                                          |                                 |               |                 |                                               | 0.1                                                                                   |      |
| Prolongation with<br>and without<br>arrangement | 0.1  | 0.6                   |         |                                   |                     |                      | 0.4                                           |                                          |                                 |               |                 |                                               | 0.4                                                                                   |      |
| Prolongation with<br>arrangement                | 13.7 | 20.1                  | 19.3    |                                   | 18.2                | 17.8                 | 14.0                                          | 14.7                                     | 13.8                            | 13.8          | 8.3             | 7.8                                           | 7.8                                                                                   |      |
| Prolongation<br>without<br>arrangement          | 5.3  | 4.5                   | 12.3    | 33.3                              | 17.2                | 8.4                  | 11.5                                          | 7.8                                      | 8.8                             | 8.4           | 7.5             | 18.8                                          | 9.0                                                                                   |      |
| Standard program                                | 80.7 | 74.9                  | 68.4    | 66.6                              | 64.6                | 73.3                 | 73.5                                          | 77.5                                     | 77.5                            | 77.8          | 84.2            | 73.4                                          | 82.6                                                                                  |      |
| N                                               | 840  | 179                   | 57      | 3                                 | 99                  | 220                  | 917                                           | 128                                      | 553                             | 455           | 264             | 64                                            | 712                                                                                   | 4491 |

Percentaging vertically.

TABLE 1 - 23

|          | Occupations<br>Agencies<br>▽ | NA   | Occup. Unidentifiable | Retired | New Workers<br>seeking employment | Students (all ages) | Housewives /<br>-men | Professional Technical<br>and Related Workers | Administrative and<br>Managerial Workers | Clerical and<br>Related Workers | Sales Workers | Service Workers | Agricultural, Forestry<br>and Related Workers | Production and Related<br>Workers, Transport<br>Equipment Operators<br>and Labourers | N    |
|----------|------------------------------|------|-----------------------|---------|-----------------------------------|---------------------|----------------------|-----------------------------------------------|------------------------------------------|---------------------------------|---------------|-----------------|-----------------------------------------------|--------------------------------------------------------------------------------------|------|
| DK/NA    |                              | 21.7 |                       | 4.4     |                                   | 8.8                 | 13.0                 | 8.8                                           | 4.4                                      | 8.8                             | 13.0          | 8.8             |                                               | 8.8                                                                                  | 24   |
| From CMB |                              | 29.1 | 6.0                   | 1.7     |                                   | 2.5                 | 4.2                  | 18.1                                          | 2.5                                      | 14.6                            | 7.8           | 3.8             | 0.8                                           | 8.9                                                                                  | 690  |
| 3        |                              | 20.7 | 3.7                   | 1.3     |                                   | 2.7                 | 6.6                  | 22.0                                          | 3.0                                      | 10.8                            | 10.0          | 4.8             | 1.6                                           | 12.4                                                                                 | 2012 |
| 2        |                              | 16.0 | 4.4                   | 1.2     |                                   | 1.3                 | 3.5                  | 19.8                                          | 2.8                                      | 13.5                            | 10.0          | 4.9             | 1.2                                           | 21.5                                                                                 | 1231 |
| 1        |                              | 9.4  | 3.0                   | 0.7     | 0.2                               | 1.6                 | 3.2                  | 22.8                                          | 3.3                                      | 12.4                            | 11.4          | 7.1             | 2.1                                           | 22.6                                                                                 | 887  |
|          |                              |      |                       |         |                                   |                     |                      |                                               |                                          |                                 |               |                 |                                               |                                                                                      | 4844 |

Percentaging horizontally.

TABLE 1 - 24

| Occupations<br>Hotels<br>▽ | NA   | Occup.Unidentifiable | Retired | New Workers<br>seeking employment | Students (all ages) | Housewives /<br>-men | Professional Technica<br>and Related Workers | Administrative and<br>Managerial Workers | Clerical and<br>Related Workers | Sales Workers | Service Workers | Agricultural, Forestr<br>and Related Workers | Production and Relate<br>Workers, Transport<br>Equipment Operators<br>and Labourers |      |
|----------------------------|------|----------------------|---------|-----------------------------------|---------------------|----------------------|----------------------------------------------|------------------------------------------|---------------------------------|---------------|-----------------|----------------------------------------------|-------------------------------------------------------------------------------------|------|
| 15                         |      |                      |         |                                   |                     |                      |                                              |                                          |                                 | 0.2           |                 |                                              |                                                                                     |      |
| 14                         | 0.6  | 0.6                  | 1.8     |                                   | 2.0                 |                      | 0.8                                          | 1.6                                      | 1.6                             | 1.1           | 1.1             | 3.1                                          | 0.4                                                                                 |      |
| 13                         | 1.7  | 1.7                  |         |                                   | 1.0                 | 1.3                  | 2.8                                          | 0.8                                      | 2.1                             | 1.3           | 2.6             |                                              | 2.7                                                                                 |      |
| 12                         | 11.6 | 7.3                  | 12.3    | 66.6                              | 11.1                | 3.6                  | 14.4                                         | 19.4                                     | 15.2                            | 16.9          | 17.3            | 26.6                                         | 21.1                                                                                |      |
| 11                         | 2.0  | 3.9                  | 3.5     |                                   | 3.0                 | 0.4                  | 2.0                                          | 3.1                                      | 2.7                             | 1.6           | 1.9             |                                              | 4.3                                                                                 |      |
| 10                         | 12.2 | 8.9                  | 10.5    | 33.3                              | 23.2                | 9.8                  | 12.1                                         | 11.6                                     | 11.6                            | 14.0          | 13.9            | 29.7                                         | 18.1                                                                                |      |
| 9                          | 5.3  | 7.3                  | 5.3     |                                   | 2.0                 | 3.6                  | 5.1                                          | 0.8                                      | 3.6                             | 4.0           | 3.4             | 6.3                                          | 6.3                                                                                 |      |
| 8                          | 1.6  | 5.6                  | 1.8     |                                   | 2.0                 | 6.2                  | 5.9                                          | 0.8                                      | 5.5                             | 4.5           | 3.8             | 6.3                                          | 6.6                                                                                 |      |
| 7                          | 6.4  | 8.9                  | 5.3     |                                   | 5.1                 | 6.2                  | 7.1                                          | 4.7                                      | 9.5                             | 5.3           | 3.8             | 7.8                                          | 10.3                                                                                |      |
| 6                          | 17.6 | 22.9                 | 21.1    |                                   | 12.1                | 16.9                 | 13.3                                         | 12.4                                     | 16.8                            | 16.3          | 14.3            | 6.3                                          | 16.2                                                                                |      |
| 5                          | 4.9  | 2.2                  | 8.8     |                                   | 3.0                 | 7.6                  | 4.3                                          | 4.7                                      | 6.8                             | 5.6           | 18.0            | 3.1                                          | 3.4                                                                                 |      |
| 4                          | 27.7 | 24.0                 | 26.3    |                                   | 23.2                | 40.0                 | 26.5                                         | 27.2                                     | 20.6                            | 20.0          | 15.8            | 9.4                                          | 8.4                                                                                 |      |
| 3                          | 0.1  | 1.1                  |         |                                   |                     |                      | 0.3                                          |                                          |                                 |               |                 |                                              | 0.1                                                                                 |      |
| 2                          | 3.9  | 3.9                  |         |                                   | 4.0                 | 1.3                  | 2.5                                          | 6.2                                      | 2.1                             | 3.8           | 2.3             |                                              | 1.1                                                                                 |      |
| 1                          | 4.5  | 1.7                  | 3.5     |                                   | 8.1                 | 3.1                  | 3.5                                          | 7.0                                      | 1.8                             | 5.6           | 1.9             | 1.6                                          | 1.0                                                                                 |      |
| N                          | 840  | 179                  | 57      | 3                                 | 99                  | 220                  | 917                                          | 128                                      | 553                             | 455           | 264             | 64                                           | 712                                                                                 | 4491 |

Percentaging vertically.

- Note: (1) The distribution of package tourists among the various hotels depends nearly completely (eventual options concerning choice of accomodation available) on the policy and packages offered by the tour operators.
- (2) Price classes according to TOT's "List of leading hotels in Bangkok". Daily rates for double bedded rooms, without consideration of available group fare reductions, and cost of meals.  
(TOURIST ORGANIZATION OF THAILAND, 1974)

Price classes ▽

| Number of hotel<br>▽ | Price for<br>double room<br>cf. (2) | Price for<br>lunch | Price for<br>dinner |
|----------------------|-------------------------------------|--------------------|---------------------|
| 1                    | 24.00-31.00                         | 3.50               | 6.25                |
| 2                    | 24.50-29.50                         | 3.25               | 9.00                |
| 3                    | 23.00-28.00                         | 3.50               | 4.50                |
| 4                    | 23.25-31.00                         | 3.40               | 5.20                |
| 5                    | 18.00-19.00                         | 3.00               | 3.50                |
| 6                    | 18.00                               | 2.50               | 3.00                |
| 7                    | 18.00-21.00                         | 2.50               | 3.00                |
| 8                    | 15.00-17.00                         | 2.50               | 3.50                |
| 9                    | 13.00-16.00                         | 1.75               | 2.25                |
| 10                   | 9.00                                | 1.97               | 2.45                |
| 11                   | 12.00                               | 2.25               | 3.00                |
| 12                   | 10.00                               | 2.25               | 3.00                |
| 13                   |                                     |                    |                     |
| 14                   | 5.00- 7.00                          | 2.00               | 3.00                |
| 15                   | 19.00-20.00                         | 3.00               | 3.50                |
| 16                   | 18.00                               | 2.75               | 3.25                |

All prices in US \$.

TABLE 1 - 25

| Sex ▽<br>Programs<br>▽          | Male   | Female |
|---------------------------------|--------|--------|
| 23 DK/NA                        | 2.2    | 2.7    |
| 22 Special packages             | 2.3    | 4.4    |
| 21 O                            | 2.9    | 5.4    |
| 20 N                            | 2.1    | 2.8    |
| 19 F - M                        | 1.6    | 3.3    |
| 18 Japan - Taiwan               | 0.3    | 0.8    |
| 17 Burma - Nepal                | 1.6    | 3.1    |
| 16 Rasa Sayang                  | 0.1    | 0.2    |
| 15 Prinsendam                   | 0.4    | 1.0    |
| 14 BKK-SIN-KL-Penang            | 0.5    | 0.8    |
| 13 BKK-Bali-SIN                 | 1.8    | 3.1    |
| 12 Penang                       | 0.2    | 0.3    |
| 11 BKK-Penang                   | 1.7    | 1.0    |
| 10 BKK-HKG                      | 1.4    | 2.7    |
| 9 BKK-HKG-Penang                | 1.0    | 2.0    |
| 8 BKK-HKG-Pattaya               | 3.1    | 6.8    |
| 7 BKK-Thailand<br>Roundtrip     | 3.2    | 6.1    |
| 6 (BKK)-Pattaya                 | 1.4    | 2.3    |
| 5 BKK-Pattaya                   | 9.2    | 6.6    |
| 4 Only BKK, 3 and<br>more weeks | 1.1    | 0.5    |
| 3 Only BKK, 1 or<br>2 weeks     | 38.0   | 27.2   |
| 1 No Program-Code               | 23.0   | 15.3   |
|                                 | N 3381 | 1578   |
|                                 |        | 4959   |
| Percentaging vertically.        |        |        |

TABLE 1 - 26

| Age, in years<br>Duration of stay<br>in Bangkok<br>▽ | under 15 | 15 - 19 | 20 - 24 | 25 - 29 | 30 - 34 | 35 - 39 | 40 - 44 | 45 - 49 | 50 - 54 | 55 - 59 | 60 - 64 | over 64 | DK/NA |      |
|------------------------------------------------------|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-------|------|
| 28                                                   |          | 2.3     | 0.2     | 0.5     | 0.6     |         |         | 0.2     |         |         |         |         |       |      |
| 27                                                   |          |         |         |         |         |         |         |         |         |         |         |         |       |      |
| 26                                                   |          |         |         |         |         |         |         |         |         |         |         |         |       |      |
| 25                                                   |          |         |         | 0.2     | 0.3     |         |         | 0.2     |         |         |         |         |       |      |
| 24                                                   |          |         |         |         |         |         |         |         |         |         |         |         |       |      |
| 23                                                   |          |         |         |         |         |         |         |         |         |         |         |         |       |      |
| 22                                                   |          |         |         |         |         |         |         |         |         |         |         |         |       |      |
| 21                                                   |          |         | 0.7     | 1.4     | 1.9     | 1.2     | 1.4     | 1.1     | 1.1     | 1.0     | 0.7     | 1.6     | 1.0   |      |
| 20                                                   |          |         |         |         |         |         |         |         |         |         |         | 0.3     |       |      |
| 19                                                   |          |         |         |         |         |         |         |         |         |         |         |         |       |      |
| 18                                                   |          |         |         | 0.1     | 0.4     |         | 0.2     |         | 0.3     |         |         | 1.0     |       |      |
| 17                                                   |          |         |         | 0.1     | 0.1     | 0.4     |         |         | 0.3     | 0.3     |         |         |       |      |
| 16                                                   |          |         |         | 0.1     | 0.1     |         |         |         | 0.6     | 0.3     |         | 0.3     |       |      |
| 15                                                   |          |         |         | 0.2     | 0.1     |         |         |         |         |         |         |         | 1.0   |      |
| 14                                                   | 3.2      | 4.7     | 14.1    | 10.7    | 11.3    | 9.1     | 7.3     | 9.3     | 6.5     | 5.1     | 4.1     | 4.2     | 3.9   |      |
| 13                                                   |          |         |         | 0.1     | 0.1     |         |         |         |         |         | 0.4     |         |       |      |
| 12                                                   |          |         | 1.0     | 0.8     | 1.0     | 0.8     | 2.8     | 2.3     | 1.1     | 0.7     |         | 1.6     | 1.0   |      |
| 11                                                   |          |         | 0.2     | 1.2     | 0.9     | 0.6     | 0.5     | 1.1     | 0.3     | 0.7     | 1.5     | 1.0     | 1.0   |      |
| 10                                                   |          |         | 0.5     | 1.7     | 1.0     | 0.6     | 1.7     | 1.1     | 1.4     | 1.3     | 0.7     | 2.9     | 2.4   |      |
| 9                                                    |          | 2.3     | 0.5     | 0.6     | 0.3     | 0.4     | 1.7     | 0.4     | 1.1     | 0.3     | 0.4     | 0.3     | 1.0   |      |
| 8                                                    |          | 2.3     | 2.2     | 1.4     | 3.0     | 2.4     | 1.4     | 4.2     | 3.7     | 1.7     | 3.0     | 3.6     | 1.0   |      |
| 7                                                    | 41.9     | 53.5    | 59.3    | 54.8    | 54.5    | 51.3    | 49.1    | 42.9    | 38.0    | 46.5    | 39.7    | 29.4    | 63.8  |      |
| 6                                                    | 6.5      | 7.0     | 2.7     | 3.0     | 5.6     | 5.8     | 7.1     | 7.4     | 9.3     | 7.1     | 10.1    | 7.8     | 5.8   |      |
| 5                                                    | 6.5      |         | 1.5     | 2.7     | 2.4     | 2.2     | 3.6     | 5.1     | 6.5     | 4.7     | 6.0     | 7.2     | 1.9   |      |
| 4                                                    | 3.2      | 11.6    | 8.6     | 8.8     | 7.6     | 11.9    | 7.1     | 10.1    | 11.5    | 14.5    | 13.1    | 16.7    | 8.7   |      |
| 3                                                    |          | 2.3     | 2.7     | 4.2     | 3.7     | 5.0     | 7.1     | 6.3     | 6.8     | 7.4     | 4.1     | 7.2     | 2.9   |      |
| 2                                                    | 9.7      | 7.0     | 1.5     | 2.3     | 1.9     | 3.4     | 4.3     | 4.4     | 5.6     | 4.7     | 8.2     | 7.8     | 1.4   |      |
| 1                                                    | 29.0     | 7.0     | 4.2     | 5.0     | 3.0     | 4.8     | 4.7     | 4.0     | 5.9     | 3.7     | 7.9     | 6.9     | 3.4   |      |
| N                                                    | 31       | 43      | 405     | 860     | 793     | 497     | 420     | 476     | 356     | 297     | 267     | 307     | 207   | 4959 |

Percentaging vertically.

Percentaging vertically.



TABLE 1 - 27

| Residences $\Delta$<br>Programs<br>V | Zurich        |               |         |                             |       |           |         |           |         |                |                |      |        |        |              |           |                  |                  |           |        |     |        |               | Non Swiss |       |       |        |          |           |      |         |       |      | N    |
|--------------------------------------|---------------|---------------|---------|-----------------------------|-------|-----------|---------|-----------|---------|----------------|----------------|------|--------|--------|--------------|-----------|------------------|------------------|-----------|--------|-----|--------|---------------|-----------|-------|-------|--------|----------|-----------|------|---------|-------|------|------|
|                                      | Berne, German | Berne, French | Lucerne | Uri, Schwyz,<br>Unterwalden | Basle | Solothurn | Thurgau | St Gallen | Grisons | Valais, German | Valais, French | Vaud | Geneva | Ticino | Schaffhausen | Appenzell | Fribourg, German | Fribourg, French | Neuchâtel | Glarus | Zug | Aargau | Liechtenstein | Zurich    | Basle | Berne | Geneva | Lausanne | St Gallen | Biel | Lucerne | DK/NA |      |      |
| 22 DK/NA                             | 24.1          | 3.4           | 0.9     | 0.9                         | 2.6   | 2.6       | 3.4     | 4.3       |         |                |                | 6.9  | 1.7    |        |              |           | 1.7              |                  |           | 2.6    | 8.6 |        | 6.0           | 3.4       | 3.4   | 2.6   |        | 0.9      | 2.6       | 14.7 | 1.7     | 116   |      |      |
| 21 Special packages                  | 11.0          | 13.7          | 1.4     | 0.7                         | 4.1   | 0.7       | 4.8     | 0.7       |         |                |                | 1.4  | 3.4    | 0.7    | 0.7          |           |                  |                  |           | 1.4    | 2.1 | 6.2    | 13.0          | 6.8       | 15.1  | 4.8   |        | 0.7      | 2.7       | 0.7  |         | 3.4   | 146  |      |
| 20 O                                 | 4.5           | 2.8           | 1.1     |                             | 6.2   | 1.1       | 1.1     |           |         |                |                | 5.6  | 0.6    | 1.1    | 0.6          |           |                  |                  |           | 2.2    | 0.6 | 1.1    | 0.6           | 2.2       | 2.8   | 3.4   | 5.6    |          | 0.6       | 0.6  | 47.2    | 8.4   | 178  |      |
| 19 N                                 | 6.1           | 7.0           | 0.9     |                             | 1.7   | 0.9       | 0.9     |           |         |                |                | 3.5  | 5.2    |        |              |           |                  |                  |           | 2.6    | 1.7 |        | 0.9           | 4.3       | 0.9   |       |        |          | 1.7       | 46.1 | 11.3    |       | 115  |      |
| 18 F - M                             | 3.7           |               | 1.9     |                             | 1.9   |           | 0.9     |           |         |                | 1.9            |      |        |        |              |           |                  |                  |           | 1.9    | 0.9 | 3.7    | 6.5           | 0.9       | 1.9   |       |        |          | 1.9       | 63.6 | 1.9     |       | 107  |      |
| 17 Japan - Taiwan                    | 9.1           |               | 4.5     | 4.5                         |       | 4.5       | 9.1     |           |         |                |                |      |        |        |              |           |                  |                  |           |        |     | 2.0    |               | 6.9       | 5.9   | 1.0   | 1.0    | 1.0      |           | 54.5 | 9.1     | 22    |      |      |
| 16 Burma - Nepal                     | 4.9           |               |         |                             | 2.0   | 1.0       | 2.0     |           |         |                |                |      | 1.0    | 3.9    |              |           |                  |                  |           | 2.9    |     |        |               |           |       |       |        |          |           | 61.8 | 2.9     | 102   |      |      |
| 15 Rasa Sayang                       |               |               |         |                             | 16.7  |           |         |           |         |                |                |      |        |        |              |           |                  |                  |           |        |     |        |               |           |       |       |        |          |           |      | 83.3    |       | 6    |      |
| 14 Prinsendam                        | 6.7           |               |         |                             | 6.7   | 6.7       | 6.7     |           |         |                |                | 3.3  |        |        |              |           |                  |                  |           | 6.7    | 6.7 | 3.3    |               | 13.3      | 6.7   | 6.7   |        |          |           | 33.3 |         | 30    |      |      |
| 13 BKK-SIN-KL-Penang                 | 7.1           | 7.1           |         |                             | 7.1   | 7.1       | 7.1     |           | 3.6     |                |                |      |        |        |              |           |                  |                  |           |        |     | 7.1    |               |           | 7.1   | 7.1   |        |          |           |      | 42.9    | 3.6   | 28   |      |
| 12 BKK-Bali-SIN                      | 4.2           |               | 1.7     |                             | 2.5   | 0.8       |         |           | 1.7     |                |                | 2.5  | 1.7    |        |              |           |                  |                  |           |        | 1.7 |        |               | 6.7       | 0.8   | 1.7   | 1.7    | 2.5      |           | 0.8  | 66.4    | 2.5   | 119  |      |
| 11 Penang                            |               |               |         |                             | 18.2  |           |         |           | 9.1     |                |                |      |        |        |              |           |                  |                  |           |        |     |        | 9.1           | 9.1       | 36.4  |       |        |          |           |      | 18.2    |       | 11   |      |
| 10 BKK-Penang                        | 12.9          | 12.9          |         |                             |       |           |         |           |         |                |                |      |        |        |              |           |                  |                  |           |        |     |        |               | 6.5       | 9.7   | 6.5   |        |          |           | 3.2  | 48.4    |       | 31   |      |
| 9 BKK-HKG                            | 1.1           | 3.4           |         |                             |       |           | 4.5     | 3.4       | 4.5     |                |                | 2.2  |        |        |              |           |                  |                  |           |        |     | 3.4    |               | 7.9       | 2.2   | 1.1   | 3.4    | 3.4      | 3.4       | 45.0 | 6.7     | 89    |      |      |
| 8 BKK-HKG-Penang                     | 7.7           |               |         |                             | 3.1   |           |         |           |         |                |                |      |        |        |              |           |                  |                  |           |        |     |        |               | 1.5       | 4.6   | 4.6   | 9.2    |          |           | 3.1  | 64.6    | 1.5   | 65   |      |
| 7 BKK-HKG-Pattaya                    | 10.0          | 4.8           | 1.0     | 1.4                         | 1.7   | 1.4       | 1.7     | 1.7       | 2.8     |                |                | 3.4  | 1.4    | 1.7    |              |           |                  |                  |           | 0.7    | 0.3 | 0.3    | 4.5           |           | 8.6   | 4.5   | 4.8    | 4.1      | 5.9       | 0.3  | 0.7     | 25.5  | 5.9  | 290  |
| 6 BKK-Thailand Roundtrip             | 7.1           | 1.5           | 0.5     | 1.5                         | 2.6   | 0.5       | 1.0     |           |         |                | 0.5            | 5.1  | 3.1    |        |              |           |                  |                  |           | 1.5    |     | 1.5    |               | 8.2       | 3.1   | 1.5   | 0.5    | 2.0      | 1.0       | 1.5  | 1.0     | 52.6  | 2.0  | 196  |
| 5 (BKK)-Pattaya                      | 22.5          | 2.2           | 4.5     |                             | 3.4   | 4.5       | 1.1     |           |         |                |                | 14.6 | 7.9    |        |              |           |                  |                  |           | 1.1    |     | 4.5    | 1.1           | 3.4       | 2.2   |       | 1.1    | 2.2      | 3.4       | 18.0 | 2.2     | 89    |      |      |
| 4 BKK- Pattaya                       | 10.2          | 2.2           | 1.2     | 2.0                         | 2.4   | 3.2       | 2.4     | 3.4       | 2.2     |                |                | 1.0  | 3.2    | 1.0    | 4.9          | 0.5       | 1.0              | 0.5              | 0.2       | 5.9    |     |        |               | 7.6       | 2.9   | 0.7   | 1.7    | 2.0      | 2.7       | 1.0  | 0.7     | 29.0  | 5.6  | 410  |
| 3 Only BKK, 3 and more weeks         | 2.3           | 2.3           | 9.3     |                             |       |           | 4.7     | 2.3       |         |                |                | 4.7  |        |        |              |           |                  |                  |           |        |     | 4.7    | 2.3           | 27.9      |       | 4.7   |        |          |           | 2.3  | 11.6    | 18.6  | 43   |      |
| 2 Only BKK, 1 or 2 weeks             | 10.2          | 3.6           | 0.7     | 0.9                         | 1.3   | 2.8       | 1.2     | 1.5       | 1.6     | 0.9            | 0.1            | 0.9  | 5.7    | 0.7    | 1.7          | 0.2       | 0.6              | 0.9              | 0.6       | 0.3    | 0.6 | 3.2    | 0.3           | 7.8       | 3.6   | 2.0   | 3.8    | 1.9      | 1.0       | 0.9  | 0.8     | 33.7  | 3.9  | 1727 |
| 1 No Program-Code                    | 6.2           | 5.0           | 0.8     | 1.4                         | 1.0   | 1.8       | 2.7     | 2.1       | 2.1     | 0.7            | 0.1            | 3.5  | 12.4   | 0.8    | 2.2          | 0.3       | 0.1              | 0.4              | 1.4       | 0.1    | 0.9 | 4.2    | 0.3           | 7.1       | 4.7   | 4.1   | 5.0    | 2.2      | 1.5       | 1.1  | 1.7     | 16.4  | 5.5  | 987  |
| Percentages horizontally.            |               |               |         |                             |       |           |         |           |         |                |                |      |        |        |              |           |                  |                  |           |        |     |        |               |           |       |       |        |          |           |      |         |       | 4907 |      |

TABLE 1 - 28

| Nationality<br>Occupations<br>▽                                                      | Switzerland | German<br>Federal Republic | Austria | Liechtenstein | France | Belgium | Luxembourg | Netherlands | Italy | Spain | Great Britain | Stateless | DK/NA |    |      |
|--------------------------------------------------------------------------------------|-------------|----------------------------|---------|---------------|--------|---------|------------|-------------|-------|-------|---------------|-----------|-------|----|------|
| Production and Related<br>Workers, Transport<br>Equipment Operators<br>and Labourers | 19.4        | 12.9                       | 13.0    | 33.4          | 7.5    | 4.2     |            | 2.9         | 12.8  |       |               | 3.8       |       |    |      |
| Agricultural, Forestry<br>and Related Workers                                        | 1.8         | 0.6                        | 1.7     |               | 0.9    |         |            | 2.9         | 2.0   |       |               |           |       |    |      |
| Service Workers                                                                      | 7.2         | 4.4                        | 3.9     |               | 2.5    | 3.8     |            |             | 6.0   | 13.4  | 9.5           |           |       |    |      |
| Sales Workers                                                                        | 9.7         | 11.4                       | 10.8    | 20.0          | 11.8   | 17.5    |            | 5.9         | 7.4   | 16.7  | 9.5           |           |       |    |      |
| Clerical and<br>Related Workers                                                      | 14.1        | 8.6                        | 6.8     | 13.3          | 17.2   | 7.0     | 25.0       | 2.9         | 6.0   | 20.0  | 19.1          | 19.2      |       |    |      |
| Administrative and<br>Managerial Workers                                             | 2.7         | 2.0                        | 2.9     |               | 4.9    | 2.3     | 25.0       | 5.9         | 1.4   |       | 9.5           |           |       |    |      |
| Professional Technical<br>and Related Workers                                        | 17.8        | 26.8                       | 19.6    | 26.7          | 21.5   | 24.4    |            | 29.4        | 14.0  | 29.8  | 33.5          | 57.6      |       |    |      |
| Housewives / -men                                                                    | 5.8         | 4.4                        | 6.5     |               | 0.6    | 2.3     |            |             | 6.0   |       | 9.5           |           |       |    |      |
| Students (all ages)                                                                  | 1.8         | 3.5                        | 2.0     | 6.7           | 1.4    | 2.3     |            | 5.9         | 4.0   | 10.0  |               | 3.8       |       |    |      |
| New Workers seeking<br>employment                                                    | 0.1         |                            |         |               |        |         |            |             |       |       |               |           |       |    |      |
| Retired                                                                              | 1.0         | 1.6                        | 2.4     |               | 2.9    |         |            |             | 2.7   |       |               |           |       |    |      |
| Occup.Unidentifiable                                                                 | 3.2         | 1.8                        | 5.8     |               | 4.0    | 12.5    | 25.0       | 2.9         | 10.1  | 3.3   |               | 11.5      |       |    |      |
| NA                                                                                   | 15.4        | 21.8                       | 24.9    |               | 24.9   | 28.8    | 25.0       | 41.1        | 16.8  | 6.7   | 9.5           | 3.8       | 10.0  |    |      |
|                                                                                      | N           | 3121                       | 475     | 343           | 15     | 387     | 225        | 4           | 38    | 154   | 33            | 20        | 26    | 23 | 4865 |

Percentaging vertically.

TABLE 1 - 29

| Occupations<br>Programs<br>▽    | NA   | Occup. Unidentifiable | Retired | New Workers<br>seeking employment | Students (all ages) | Housewives /<br>-men | Professional Technical<br>and Related Workers | Administrative and<br>Managerial Workers | Clerical and<br>Related Workers | Sales Workers | Service Workers | Agricultural, Forestry<br>and Related Workers | Production and Related<br>Workers, Transport<br>Equipment Operators<br>and Labourers |      |
|---------------------------------|------|-----------------------|---------|-----------------------------------|---------------------|----------------------|-----------------------------------------------|------------------------------------------|---------------------------------|---------------|-----------------|-----------------------------------------------|--------------------------------------------------------------------------------------|------|
| 22 DK/NA                        | 1.9  | 1.7                   | 1.8     |                                   | 1.0                 | 4.1                  | 2.2                                           | 5.5                                      | 3.8                             | 2.6           | 1.5             |                                               | 1.8                                                                                  |      |
| 21 Special packages             | 3.1  | 1.1                   | 5.3     |                                   |                     | 5.5                  | 1.6                                           | 0.8                                      | 5.2                             | 1.3           | 16.7            |                                               | 1.1                                                                                  |      |
| 20 O                            | 6.0  | 6.1                   |         |                                   | 2.0                 | 3.2                  | 4.4                                           | 3.9                                      | 4.9                             | 2.9           | 2.7             | 6.3                                           | 2.7                                                                                  |      |
| 19 N                            | 4.4  | 4.5                   | 1.8     |                                   | 6.1                 | 0.9                  | 2.2                                           | 2.3                                      | 3.1                             | 1.5           | 1.1             |                                               | 1.4                                                                                  |      |
| 18 F - M                        | 2.5  | 1.1                   | 3.5     |                                   |                     | 0.9                  | 1.7                                           | 0.8                                      | 2.4                             | 2.0           | 1.9             |                                               | 0.4                                                                                  |      |
| 17 Japan - Taiwan               | 1.0  |                       |         |                                   | 2.0                 | 0.5                  | 0.7                                           |                                          | 0.4                             | 0.2           | 0.4             |                                               | 0.1                                                                                  |      |
| 16 Burma - Nepal                | 2.5  | 3.9                   | 3.5     |                                   | 4.0                 | 4.1                  | 3.7                                           | 3.9                                      | 1.8                             | 0.9           | 0.4             | 3.1                                           | 0.4                                                                                  |      |
| 15 Rasa Sayang                  | 0.2  |                       |         |                                   |                     | 0.5                  | 0.1                                           |                                          |                                 | 0.4           |                 |                                               |                                                                                      |      |
| 14 Prinsendam                   | 1.8  |                       |         |                                   | 1.0                 | 0.9                  | 0.7                                           | 1.6                                      |                                 | 0.7           | 0.4             |                                               |                                                                                      |      |
| 13 BKK-SIN-KL-Penang            | 0.6  | 0.6                   | 1.8     |                                   |                     | 1.4                  | 1.0                                           |                                          | 0.5                             | 0.7           | 0.8             |                                               | 0.1                                                                                  |      |
| 12 BKK-Bali-SIN                 | 4.8  | 1.1                   | 1.8     |                                   | 4.0                 | 5.5                  | 3.2                                           | 3.1                                      | 1.8                             | 2.4           | 0.8             | 3.1                                           | 0.3                                                                                  |      |
| 11 Penang                       | 0.6  | 0.6                   | 1.8     |                                   |                     |                      | 0.1                                           |                                          |                                 | 0.2           | 0.8             |                                               |                                                                                      |      |
| 10 BKK-Penang                   | 0.2  | 0.6                   | 1.8     |                                   |                     | 1.8                  | 0.3                                           |                                          | 0.4                             | 2.0           |                 |                                               | 0.7                                                                                  |      |
| 9 BKK-HKG                       | 2.1  | 3.9                   | 1.8     |                                   | 1.0                 | 0.9                  | 1.6                                           | 3.1                                      | 1.6                             | 1.5           | 0.8             |                                               | 1.0                                                                                  |      |
| 8 BKK-HKG-Penang                | 1.8  | 1.1                   | 5.3     |                                   |                     | 1.4                  | 1.3                                           | 2.3                                      | 2.0                             | 2.2           | 1.1             |                                               | 0.4                                                                                  |      |
| 7 BKK-HKG-Pattaya               | 6.8  | 6.1                   | 7.0     |                                   | 2.0                 | 10.9                 | 5.0                                           | 3.9                                      | 4.7                             | 8.1           | 4.2             | 6.2                                           | 2.8                                                                                  |      |
| 6 BKK-Thailand<br>Roundtrip     | 4.4  | 8.4                   | 5.3     |                                   | 3.0                 | 5.9                  | 5.0                                           | 1.6                                      | 5.2                             | 2.6           | 0.4             | 3.1                                           | 2.7                                                                                  |      |
| 5 (BKK)-Pattaya                 | 1.7  | 1.1                   | 3.5     |                                   | 8.1                 | 3.6                  | 0.9                                           | 3.9                                      | 0.7                             | 2.9           | 2.7             |                                               | 0.7                                                                                  |      |
| 4 BKK-Pattaya                   | 9.0  | 8.9                   | 8.8     |                                   | 7.1                 | 6.4                  | 7.0                                           | 8.6                                      | 8.1                             | 6.4           | 9.5             | 15.6                                          | 9.8                                                                                  |      |
| 3 Only BKK, 3 and<br>more weeks | 0.2  | 0.6                   | 3.5     |                                   |                     | 0.5                  | 0.3                                           |                                          | 1.3                             | 1.5           | 0.4             |                                               | 1.7                                                                                  |      |
| 2 Only BKK, 1 or<br>2 weeks     | 31.9 | 31.3                  | 31.6    | 33.3                              | 40.4                | 25.9                 | 35.7                                          | 30.5                                     | 30.8                            | 33.1          | 30.3            | 36.0                                          | 44.5                                                                                 |      |
| 1 No Program-Code               | 12.5 | 17.3                  | 10.5    | 66.7                              | 18.2                | 17.7                 | 21.4                                          | 24.2                                     | 7.3                             | 23.7          | 23.5            | 26.6                                          | 27.2                                                                                 |      |
| N                               | 840  | 179                   | 57      | 3                                 | 99                  | 220                  | 917                                           | 128                                      | 553                             | 455           | 264             | 64                                            | 712                                                                                  | 4491 |

Percentaging vertically.

TABLE 1 - 30

| Age, in years<br>Residences<br>▽ | under 15 | 15 - 19 | 20 - 24 | 25 - 29 | 30 - 34 | 35 - 39 | 40 - 44 | 45 - 49 | 50 - 54 | 55 - 59 | 60 - 64 | over 64 | DK/NA |
|----------------------------------|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-------|
| DK/NA                            | 3.2      | 4.7     | 6.4     | 5.6     | 4.5     | 3.8     | 1.9     | 2.5     | 3.4     | 2.7     | 3.7     | 3.3     | 18.4  |
| Non Swiss                        | 35.5     | 37.2    | 18.8    | 23.1    | 26.6    | 37.2    | 40.0    | 37.6    | 38.5    | 36.4    | 42.3    | 36.2    | 23.7  |
| Lucerne                          |          | 2.3     | 0.2     | 1.5     | 0.9     | 1.0     | 1.0     | 1.5     | 0.3     | 1.7     | 0.4     | 1.0     | 1.4   |
| Biel                             | 3.2      |         | 1.2     | 0.8     | 0.8     | 2.0     | 0.5     | 0.8     | 1.1     | 1.7     | 0.4     | 0.7     |       |
| St Gallen                        |          |         | 2.5     | 1.5     | 0.9     | 1.2     | 0.7     | 0.8     | 1.4     | 0.3     | 0.4     | 0.3     | 0.5   |
| Lausanne                         |          | 2.3     | 1.0     | 0.7     | 1.4     | 1.4     | 2.1     | 0.6     | 2.8     | 1.0     | 5.6     | 5.5     | 3.9   |
| Geneva                           |          | 2.3     | 3.2     | 2.7     | 3.7     | 3.0     | 3.8     | 4.2     | 3.9     | 4.0     | 0.7     | 5.5     | 5.8   |
| Berne                            | 6.5      |         | 5.2     | 3.0     | 1.4     | 3.2     | 1.9     | 3.6     | 2.8     | 3.0     | 1.5     | 3.9     | 1.0   |
| Basle                            |          | 4.7     | 3.2     | 4.1     | 3.8     | 2.4     | 6.0     | 4.6     | 2.0     | 4.7     | 3.7     | 5.9     | 1.9   |
| Zurich                           | 3.2      | 4.7     | 4.2     | 7.7     | 8.3     | 6.8     | 6.0     | 7.6     | 9.6     | 8.4     | 6.7     | 10.1    | 3.9   |
| Liechtenstein                    |          |         | 0.7     | 0.6     | 0.4     |         |         |         | 0.6     |         | 1.9     |         |       |
| Aargau                           |          | 4.7     | 6.7     | 5.3     | 4.2     | 3.6     | 2.1     | 1.1     | 1.4     | 1.0     | 1.5     | 1.6     | 5.8   |
| Zug                              |          |         | 0.7     | 1.6     | 0.5     | 0.6     | 0.7     |         | 0.6     | 1.3     | 0.4     | 0.3     | 1.0   |
| Glarus                           |          |         | 0.7     | 0.6     | 0.4     |         |         |         |         |         | 1.9     |         |       |
| Neuchatel                        |          | 2.3     | 1.5     | 0.8     | 0.8     | 0.4     | 1.7     | 1.5     | 2.5     | 1.3     | 0.4     | 3.9     | 1.0   |
| Fribourg, French                 |          |         | 0.7     | 0.8     | 0.3     | 1.2     | 1.0     | 1.9     | 1.1     | 0.7     |         | 0.3     | 2.4   |
| Fribourg, German                 |          |         |         |         | 0.1     |         | 0.5     |         | 0.3     |         |         |         |       |
| Appenzell                        |          |         |         | 0.3     | 0.8     | 0.2     | 0.2     |         | 0.3     |         | 0.4     | 0.3     |       |
| Schaffhausen                     |          |         | 0.2     | 0.2     | 0.4     | 0.2     |         |         |         |         |         | 1.0     |       |
| Ticino                           |          | 2.3     | 3.0     | 1.2     | 2.5     | 1.6     | 1.0     | 3.6     | 1.7     | 3.7     | 3.0     | 2.0     | 2.4   |
| Geneva                           | 6.5      |         | 1.0     | 0.3     | 0.5     | 1.0     | 0.7     | 1.1     | 0.8     | 0.3     | 0.7     | 0.3     | 0.5   |
| Vaud                             | 12.9     | 18.6    | 9.9     | 4.5     | 4.9     | 4.4     | 5.0     | 5.5     | 6.5     | 11.1    | 8.6     | 6.2     | 2.4   |
| Valais, French                   |          |         | 0.2     | 1.3     | 3.7     | 0.6     | 0.5     | 0.6     | 0.8     |         |         | 0.3     | 2.9   |
| Valais, German                   |          |         |         |         | 0.1     | 0.4     |         |         |         |         |         |         |       |
| Grisons                          |          |         | 1.0     | 1.0     | 1.0     | 1.0     | 0.5     | 0.6     | 1.4     | 1.0     |         | 0.3     |       |
| St Gallen                        | 3.2      |         | 3.2     | 3.1     | 1.4     | 2.2     | 0.7     | 2.3     | 1.1     | 1.7     | 0.7     | 1.0     | 1.9   |
| Thurgau                          |          |         | 1.2     | 1.9     | 2.4     | 1.2     | 2.1     | 1.7     | 0.3     | 1.0     | 3.0     | 0.7     | 1.4   |
| Solothurn                        | 3.2      | 2.3     | 1.7     | 2.2     | 1.5     | 0.4     | 1.9     | 1.3     | 2.0     | 2.0     | 1.5     | 1.0     | 1.9   |
| Basle                            |          |         | 3.7     | 3.3     | 3.0     | 2.2     | 1.9     | 3.2     | 3.7     | 1.0     | 1.9     | 1.3     |       |
| Uri, Schwyz, Unterwalden         |          |         | 1.5     | 1.0     | 1.1     | 1.0     | 1.7     | 0.4     | 0.6     | 0.7     | 0.4     | 1.0     | 0.5   |
| Lucerne                          |          |         | 0.5     | 1.5     | 1.9     | 1.8     | 1.2     | 0.4     | 0.8     | 1.0     | 1.1     |         | 0.5   |
| Berne, French                    | 3.2      |         |         | 0.5     | 0.6     | 0.4     | 0.7     | 0.4     | 0.6     | 1.0     |         | 0.7     | 2.9   |
| Berne, German                    | 3.2      |         | 4.9     | 7.0     | 4.7     | 3.8     | 4.8     | 2.1     | 2.0     | 1.3     | 1.9     | 1.0     | 4.8   |
| Zurich                           | 16.1     | 11.6    | 10.9    | 10.1    | 10.7    | 9.5     | 7.4     | 8.6     | 5.3     | 5.7     | 5.2     | 4.6     | 7.2   |
| N                                | 31       | 43      | 405     | 860     | 793     | 497     | 420     | 476     | 356     | 297     | 267     | 307     | 207   |

4959

Percentaging vertically.



TABLE 1 - 31

| Occupations ▽<br>Duration of stay<br>in Bangkok, in<br>days ▽ | NA   | Occup.Unidentifiable | Retired | New Workers<br>seeking employment | Students (all ages) | Housewives /<br>-men | Professional Technical<br>and Related Workers | Administrative and<br>Managerial Workers | Clerical and<br>Related Workers | Sales Workers | Service Workers | Agricultural, Forestry<br>and Related Workers | Production and Related<br>Workers, Transport<br>Equipment Operators<br>and Labourers |      |
|---------------------------------------------------------------|------|----------------------|---------|-----------------------------------|---------------------|----------------------|-----------------------------------------------|------------------------------------------|---------------------------------|---------------|-----------------|-----------------------------------------------|--------------------------------------------------------------------------------------|------|
| 28                                                            | 0.2  |                      |         |                                   |                     |                      | 0.1                                           |                                          | 0.2                             | 0.4           |                 |                                               | 0.6                                                                                  |      |
| 27                                                            |      |                      |         |                                   |                     |                      |                                               |                                          |                                 |               |                 |                                               |                                                                                      |      |
| 26                                                            |      |                      |         |                                   |                     |                      |                                               |                                          |                                 |               |                 |                                               |                                                                                      |      |
| 25                                                            |      |                      |         |                                   |                     |                      |                                               |                                          |                                 |               |                 |                                               |                                                                                      |      |
| 24                                                            |      |                      |         |                                   |                     |                      |                                               |                                          |                                 |               |                 |                                               |                                                                                      |      |
| 23                                                            |      |                      |         |                                   |                     |                      |                                               |                                          |                                 |               |                 |                                               |                                                                                      |      |
| 22                                                            |      |                      |         |                                   |                     |                      |                                               |                                          |                                 |               |                 |                                               |                                                                                      |      |
| 21                                                            | 0.7  | 1.1                  | 3.5     |                                   |                     | 1.3                  | 0.9                                           |                                          | 2.0                             | 1.8           | 0.8             |                                               | 2.6                                                                                  |      |
| 20                                                            |      |                      |         |                                   |                     |                      | 0.1                                           |                                          |                                 |               |                 |                                               |                                                                                      |      |
| 19                                                            |      |                      |         |                                   |                     |                      |                                               |                                          |                                 |               |                 |                                               |                                                                                      |      |
| 18                                                            | 0.1  |                      |         |                                   |                     | 0.4                  | 0.2                                           |                                          | 0.4                             | 0.2           |                 |                                               | 0.1                                                                                  |      |
| 17                                                            | 0.1  |                      | 1.8     |                                   |                     | 0.4                  | 0.2                                           |                                          | 0.2                             |               |                 |                                               |                                                                                      |      |
| 16                                                            |      |                      |         |                                   |                     |                      | 0.1                                           |                                          |                                 |               |                 |                                               |                                                                                      |      |
| 15                                                            | 0.1  |                      |         |                                   |                     |                      | 0.2                                           |                                          | 0.2                             |               |                 |                                               | 0.3                                                                                  |      |
| 14                                                            | 5.5  | 5.6                  | 8.8     |                                   | 7.1                 | 3.1                  | 7.9                                           | 6.2                                      | 5.9                             | 7.8           | 9.4             | 6.3                                           | 17.5                                                                                 |      |
| 13                                                            | 0.2  |                      |         |                                   |                     |                      |                                               |                                          | 0.4                             |               |                 |                                               |                                                                                      |      |
| 12                                                            | 0.8  | 2.2                  | 1.8     |                                   |                     | 0.9                  | 1.2                                           |                                          | 1.1                             | 0.7           | 5.6             |                                               | 1.1                                                                                  |      |
| 11                                                            | 0.5  | 0.6                  | 1.8     |                                   | 2.0                 | 0.9                  | 1.1                                           | 0.8                                      | 0.5                             | 0.4           | 1.1             |                                               | 0.4                                                                                  |      |
| 10                                                            | 1.8  | 2.2                  | 1.8     |                                   | 1.0                 | 0.4                  | 1.5                                           | 0.8                                      | 1.4                             | 0.7           | 0.8             | 3.1                                           | 0.3                                                                                  |      |
| 9                                                             | 0.6  | 2.2                  | 1.8     |                                   |                     | 0.4                  | 1.0                                           |                                          | 0.9                             | 0.4           |                 | 1.6                                           | 0.3                                                                                  |      |
| 8                                                             | 3.3  | 2.8                  | 1.8     |                                   | 2.0                 | 4.9                  | 3.6                                           | 0.8                                      | 2.1                             | 1.3           | 3.0             |                                               | 1.7                                                                                  |      |
| 7                                                             | 46.5 | 49.7                 | 38.6    | 10.0                              | 54.5                | 30.2                 | 46.5                                          | 47.3                                     | 48.3                            | 48.7          | 44.7            | 75.0                                          | 57.9                                                                                 |      |
| 6                                                             | 6.4  | 8.9                  | 10.5    |                                   | 5.1                 | 10.2                 | 6.1                                           | 7.0                                      | 5.5                             | 8.0           | 4.5             | 3.1                                           | 2.7                                                                                  |      |
| 5                                                             | 5.5  | 2.8                  |         |                                   |                     | 4.9                  | 3.6                                           | 6.2                                      | 3.4                             | 4.0           | 0.8             |                                               | 2.4                                                                                  |      |
| 4                                                             | 10.1 | 9.5                  | 14.0    |                                   | 9.1                 | 19.6                 | 11.5                                          | 10.8                                     | 14.1                            | 9.1           | 19.2            | 1.6                                           | 4.9                                                                                  |      |
| 3                                                             | 5.8  | 5.0                  | 5.3     |                                   | 3.0                 | 8.4                  | 5.1                                           | 5.4                                      | 4.8                             | 6.7           | 3.8             | 4.7                                           | 2.6                                                                                  |      |
| 2                                                             | 5.7  | 3.4                  | 1.8     |                                   | 5.1                 | 7.1                  | 3.8                                           | 7.8                                      | 3.9                             | 4.0           | 1.9             | 3.1                                           | 2.1                                                                                  |      |
| 1                                                             | 5.9  | 3.9                  | 7.0     |                                   | 11.1                | 6.7                  | 5.3                                           | 7.0                                      | 4.7                             | 5.8           | 4.5             | 1.6                                           | 2.4                                                                                  |      |
| N                                                             | 840  | 179                  | 57      | 3                                 | 99                  | 220                  | 917                                           | 128                                      | 553                             | 455           | 264             | 64                                            | 712                                                                                  | 4491 |

Percentaging vertically.

Percentaging vertically.



## APPENDIX 2

Crosstabulated results: Optional extensions from Bangkok, socio-economic and touristic background variables (N = 883).

12 Tables.





TABLE 2 - 3

| Occupations<br>Extension | NA   | Occup. Unidentifiable | Retired | New Workers<br>seeking employment | Students (all ages) | Housewives / -men | Professional Technical<br>and Related Workers | Administrative and<br>Managerial Workers | Clerical and<br>Related Workers | Sales Workers | Service Workers | Agricultural, Forestry<br>and Related Workers | Production and Related<br>Workers, Transport<br>Equipment Operators<br>and Labourers | N   |
|--------------------------|------|-----------------------|---------|-----------------------------------|---------------------|-------------------|-----------------------------------------------|------------------------------------------|---------------------------------|---------------|-----------------|-----------------------------------------------|--------------------------------------------------------------------------------------|-----|
| Thailand Roundtrip       | 19.3 | 10.5                  | 0.9     |                                   | 0.9                 | 4.4               | 32.5                                          | 2.6                                      | 8.8                             | 9.6           | 2.6             | 0.9                                           | 7.0                                                                                  | 114 |
| Chiang Mai               | 23.0 | 6.1                   | 0.8     |                                   | 0.4                 | 4.9               | 22.5                                          | 2.9                                      | 15.2                            | 7.4           | 3.3             | 0.4                                           | 13.1                                                                                 | 244 |
| Phuket                   | 30.0 | 10.0                  |         |                                   | 5.0                 |                   | 15.0                                          |                                          | 10.0                            | 10.0          |                 |                                               | 10.1                                                                                 | 20  |
| Penang                   | 19.6 | 2.0                   | 2.0     |                                   | 5.9                 | 13.7              | 17.6                                          | 3.9                                      | 11.8                            | 7.8           | 2.0             |                                               | 13.7                                                                                 | 51  |
| Burma                    | 14.1 | 7.6                   | 2.2     |                                   |                     | 10.9              | 45.7                                          | 1.1                                      | 12.0                            | 5.4           | 1.1             |                                               | 5.4                                                                                  | 92  |
| Bali                     | 16.2 | 10.8                  |         |                                   |                     | 13.5              | 27.0                                          | 2.7                                      | 10.8                            | 5.4           |                 | 2.7                                           | 10.8                                                                                 | 37  |
| Hongkong                 | 8.7  | 4.3                   | 1.1     |                                   | 2.2                 | 6.5               | 27.2                                          | 2.2                                      | 17.4                            | 16.3          | 4.3             |                                               | 9.8                                                                                  | 92  |
| Laos                     | 18.5 | 4.3                   | 2.2     |                                   | 2.2                 | 4.3               | 40.2                                          | 3.3                                      | 6.5                             | 13.0          | 1.1             | 1.1                                           | 3.3                                                                                  | 92  |
| Nepal                    | 8.8  | 5.9                   |         |                                   |                     | 5.9               | 55.9                                          | 5.9                                      | 8.8                             | 2.9           | 2.9             |                                               | 2.9                                                                                  | 34  |
| Singapore                | 9.5  | 4.8                   |         |                                   |                     | 4.8               | 21.4                                          | 2.4                                      | 23.8                            | 7.1           | 4.8             |                                               | 11.9                                                                                 | 42  |
|                          |      |                       |         |                                   |                     |                   |                                               |                                          |                                 |               |                 |                                               |                                                                                      | 818 |

Percentaging horizontally.

TABLE 2 - 4

| Nationalities<br>Extensions | Switzerland | German<br>Federal Republic | Austria | Liechtenstein | France | Belgium | Luxemburg | Netherlands | Italy | Spain | Great Britain | Others | Stateless | DK/NA | N   |
|-----------------------------|-------------|----------------------------|---------|---------------|--------|---------|-----------|-------------|-------|-------|---------------|--------|-----------|-------|-----|
| Thailand Roundtrip          | 43.7        | 12.6                       | 8.4     |               | 13.4   | 17.6    |           |             | 3.4   |       |               | 0.8    |           |       | 119 |
| Chiang Mai                  | 57.0        | 8.8                        | 8.8     |               | 12.9   | 6.3     |           | 0.7         | 2.2   | 0.8   |               | 2.6    | 0.8       |       | 272 |
| Phuket                      | 45.0        | 10.0                       | 35.0    |               |        |         |           |             | 10.0  |       |               |        |           |       | 20  |
| Penang                      | 46.3        | 5.6                        | 27.8    |               |        | 3.7     |           |             | 7.4   |       | 3.7           | 3.7    | 1.9       |       | 54  |
| Burma                       | 44.8        | 11.5                       | 28.1    |               | 4.2    | 4.2     |           | 2.1         | 3.1   |       |               | 1.0    | 1.0       |       | 96  |
| Bali                        | 72.1        | 2.3                        | 4.7     |               | 4.7    |         |           |             | 11.6  | 4.7   |               |        |           |       | 43  |
| Hongkong                    | 79.8        | 9.6                        |         |               | 1.0    |         |           |             | 5.8   |       |               | 3.9    |           |       | 104 |
| Laos                        | 59.1        | 16.1                       | 15.1    |               | 6.5    | 1.1     |           |             | 2.2   |       |               |        |           |       | 93  |
| Nepal                       | 48.6        | 37.1                       |         |               | 14.3   |         |           |             |       |       |               |        |           |       | 35  |
| Singapore                   | 71.7        | 4.3                        | 2.2     |               | 4.3    | 10.9    |           |             | 2.2   | 4.3   |               |        |           |       | 46  |
|                             |             |                            |         |               |        |         |           |             |       |       |               |        |           |       | 883 |

Percentaging horizontally.

[illegible]

TABLE 2 - 6

[illegible]

TABLE 2 - 7

| Number of stays<br>in Bangkok<br>Extensions | 1    | 2    | 3    | 4   | 5   | N   |
|---------------------------------------------|------|------|------|-----|-----|-----|
| Thailand Roundtrip                          | 56.3 | 30.3 | 11.8 | 1.7 |     | 119 |
| Chiang Mai                                  | 47.8 | 38.2 | 11.8 | 1.5 | 0.7 | 272 |
| Phuket                                      | 60.0 | 20.0 | 20.0 |     |     | 20  |
| Penang                                      | 74.1 | 20.4 | 5.6  |     |     | 54  |
| Burma                                       | 33.3 | 50.0 | 12.5 | 2.1 | 2.1 | 96  |
| Bali                                        | 25.6 | 62.8 | 9.3  | 2.3 |     | 43  |
| Hongkong                                    | 75.0 | 25.0 |      |     |     | 104 |
| Laos                                        | 16.1 | 43.0 | 40.8 |     |     | 93  |
| Nepal                                       | 28.6 | 57.1 | 14.3 |     |     | 35  |
| Singapore                                   | 48.9 | 46.8 | 4.3  |     |     | 47  |
|                                             |      |      |      |     |     | 883 |
| Percentaging horizontally.                  |      |      |      |     |     |     |

TABLE 2 - 8

| Prolongations<br>Extensions | Standard Program | Prolongation<br>without<br>arrangement | Prolongation<br>with<br>arrangement | Prolongation<br>with and without<br>arrangement | N   |
|-----------------------------|------------------|----------------------------------------|-------------------------------------|-------------------------------------------------|-----|
| Thailand Roundtrip          | 47.1             | 0.8                                    | 52.1                                |                                                 | 119 |
| Chiang Mai                  | 75.3             | 3.7                                    | 21.0                                |                                                 | 272 |
| Phuket                      | 30.0             |                                        | 70.0                                |                                                 | 20  |
| Penang                      | 27.8             | 3.7                                    | 68.5                                |                                                 | 54  |
| Burma                       | 41.7             | 6.3                                    | 51.0                                | 1.0                                             | 96  |
| Bali                        | 67.4             | 2.3                                    | 27.9                                | 2.3                                             | 43  |
| Hongkong                    | 99.0             | 1.0                                    |                                     |                                                 | 104 |
| Laos                        | 35.5             | 5.4                                    | 55.9                                | 3.2                                             | 93  |
| Nepal                       | 48.6             | 5.7                                    | 45.7                                |                                                 | 35  |
| Singapore                   | 83.0             |                                        | 17.0                                |                                                 | 47  |
|                             |                  |                                        |                                     |                                                 | 883 |
| Percentaging horizontally.  |                  |                                        |                                     |                                                 |     |

TABLE 2 - 9

| Hotel ▶<br>Extension<br>▼ | 1    | 2   | 3   | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12   | 13  | 14  | 15  | 16  | N   |
|---------------------------|------|-----|-----|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|
| Thailand Roundtrip        | 34.2 | 0.9 | 1.7 | 28.2 |      | 11.1 | 5.1  |      | 14.5 |      |      | 3.4  |     |     |     | 0.9 | 119 |
| Chiang Mai                | 2.2  | 1.8 |     | 24.3 | 8.1  | 13.2 | 5.5  | 8.1  | 10.3 | 3.7  | 4.4  | 13.2 | 2.6 | 1.8 |     | 0.7 | 272 |
| Phuket                    |      |     | 5.0 | 5.0  | 45.0 | 15.0 |      |      | 5.0  | 25.0 |      |      |     |     |     |     | 20  |
| Penang                    | 13.0 | 3.7 |     | 48.1 |      | 20.3 |      |      | 5.6  | 7.4  | 1.9  |      |     |     |     |     | 54  |
| Burma                     | 10.4 |     |     | 47.9 |      | 15.6 | 1.0  | 5.2  | 10.4 |      | 1.0  | 7.3  |     | 1.0 |     |     | 96  |
| Bali                      | 9.3  | 4.7 |     | 32.6 | 16.3 | 11.6 | 4.7  | 9.3  | 2.3  | 4.7  |      |      |     |     |     | 4.7 | 43  |
| Hongkong                  |      |     |     | 7.7  | 16.3 | 1.0  |      | 51.9 |      |      | 11.5 | 2.9  |     | 6.7 | 1.9 |     | 104 |
| Laos                      | 7.5  |     |     | 47.3 | 19.4 | 2.2  | 4.3  | 1.1  | 10.8 | 4.3  |      | 1.1  |     | 2.2 |     |     | 93  |
| Nepal                     | 5.7  | 5.7 |     | 37.1 | 5.7  | 5.7  | 5.7  | 8.6  | 17.1 |      | 2.9  |      | 5.7 |     |     |     | 35  |
| Singapore                 |      | 8.9 |     | 6.7  | 11.1 | 37.8 | 11.1 | 4.4  |      | 4.4  | 2.2  | 13.3 |     |     |     |     | 45  |
|                           |      |     |     |      |      |      |      |      |      |      |      |      |     |     |     |     | 883 |

Percentaging horizontally.

TABLE 2 - 10

| Room-Type ▶<br>Extension<br>▼ | Single | Double | Double | Triple | N   |
|-------------------------------|--------|--------|--------|--------|-----|
| Thailand Roundtrip            | 47.1   | 52.1   | 0.8    |        | 119 |
| Chiang Mai                    | 21.0   | 76.5   | 2.6    |        | 272 |
| Phuket                        | 25.0   | 70.0   | 5.0    |        | 20  |
| Penang                        | 22.2   | 66.7   |        | 11.1   | 54  |
| Burma                         | 18.8   | 78.1   | 3.1    |        | 96  |
| Bali                          | 23.3   | 72.1   |        | 4.7    | 43  |
| Hongkong                      | 33.7   | 65.4   | 1.0    |        | 104 |
| Laos                          | 29.0   | 68.8   | 2.2    |        | 93  |
| Nepal                         | 20.0   | 77.1   | 2.9    |        | 35  |
| Singapore                     | 13.3   | 75.6   | 11.1   |        | 45  |
|                               |        |        |        |        | 883 |

Percentaging horizontally.



TABLE 2 - 11

| Agencies Extension<br>▼ | From Zurich |      |      | From CMB | DK/NA | N   |
|-------------------------|-------------|------|------|----------|-------|-----|
|                         | 1           | 2    | 3    |          |       |     |
| Thailand Roundtrip      | 25.2        | 47.1 | 27.7 |          |       | 119 |
| Chiang Mai              | 25.4        | 17.3 | 36.8 | 20.6     |       | 272 |
| Phuket                  | 25.0        |      | 70.0 | 5.0      |       | 20  |
| Penang                  | 29.6        | 18.5 | 70.4 | 9.3      |       | 54  |
| Burma                   | 6.3         | 15.6 | 68.8 | 9.4      |       | 96  |
| Bali                    | 30.2        | 11.6 | 34.9 | 20.9     | 2.3   | 43  |
| Hongkong                | 90.4        | 1.9  | 6.7  | 1.0      |       | 104 |
| Laos                    | 20.4        | 8.6  | 69.9 | 1.1      |       | 93  |
| Nepal                   | 17.1        | 11.4 | 60.0 | 11.4     |       | 35  |
| Singapore               | 17.0        | 48.9 | 10.6 | 23.4     |       | 4   |
|                         |             |      |      |          |       | 883 |

Percentaging horizontally.

TABLE 2 - 12

| Extension Extension<br>▼ | Thailand Roundtrip | Chiang Mai | Phuket | Penang | Burma | Bali | Hongkong | Laos | Nepal | Singapore |
|--------------------------|--------------------|------------|--------|--------|-------|------|----------|------|-------|-----------|
| 13 Thailand Roundtrip    | 119                |            |        |        |       |      |          |      |       |           |
| 14 Chiang Mai            | 8                  | 272        |        |        |       |      |          |      |       |           |
| 15 Phuket                | 2                  |            | 20     |        |       |      |          |      |       |           |
| 16 Penang                | 4                  | 5          | 2      | 54     |       |      |          |      |       |           |
| 17 Burma                 | 6                  | 17         | 4      | 6      | 96    |      |          |      |       |           |
| 18 Bali                  | 4                  | 2          |        | 2      |       | 43   |          |      |       |           |
| 19 Hongkong              |                    | 4          |        |        |       |      | 104      |      |       |           |
| 20 Laos                  | 11                 | 19         | 5      | 5      | 24    |      |          | 93   |       |           |
| 21 Nepal                 | 2                  | 2          |        | 2      | 7     |      |          |      | 35    |           |
| 22 Singapore             |                    | 2          |        | 1      |       | 3    |          |      |       | 4         |

Figures shown are number of persons.



### APPENDIX 3

Crosstabulated results: Test survey statistics. 12 Tables.





TABLE 3 - 3

| Occupations<br>Persons Contacted | NA   | Occup. Unidentifiable | Retired | New workers<br>seeking employment | Students (all ages) | Housewives / -men | Professional Technical<br>and Related Workers | Administrative and<br>Managerial Workers | Clerical and<br>Related Workers | Sales Workers | Service Workers | Agricultural,<br>Forestry and<br>Related Workers | Production and Re-<br>lated Workers, Trans-<br>port Equipment Opera-<br>tors and Labourers | N    |
|----------------------------------|------|-----------------------|---------|-----------------------------------|---------------------|-------------------|-----------------------------------------------|------------------------------------------|---------------------------------|---------------|-----------------|--------------------------------------------------|--------------------------------------------------------------------------------------------|------|
| First contact                    | 19.4 | 3.7                   | 1.0     | 0.2                               | 2.6                 | 2.9               | 18.8                                          | 2.2                                      | 14.4                            | 8.7           | 5.8             | 1.1                                              | 19.3                                                                                       | 1302 |
| Second contact                   | 18.9 | 3.5                   | 1.0     | 0.2                               | 2.6                 | 2.8               | 18.8                                          | 2.3                                      | 14.3                            | 8.9           | 5.6             | 1.1                                              | 20.1                                                                                       | 1131 |
| Types of reaction                |      |                       |         |                                   |                     |                   |                                               |                                          |                                 |               |                 |                                                  |                                                                                            |      |
| No show / Change of<br>program   |      |                       |         |                                   | 2.9                 |                   | 0.8                                           |                                          |                                 |               |                 |                                                  |                                                                                            |      |
| Empty return                     | 0.4  |                       |         |                                   |                     |                   | 1.6                                           |                                          | 1.6                             | 0.9           |                 | 7.1                                              |                                                                                            |      |
| No reaction<br>whatsoever        | 84.9 | 83.3                  | 84.6    | 100.0                             | 88.2                | 84.2              | 86.1                                          | 92.9                                     | 86.2                            | 89.4          | 82.9            | 85.7                                             | 90.4                                                                                       |      |
| Not willing to<br>cooperate      | 2.0  | 4.2                   | 7.7     |                                   | 2.9                 | 2.6               | 0.8                                           |                                          | 1.1                             | 1.8           | 1.3             |                                                  | 0.8                                                                                        |      |
| Willing to<br>cooperate          | 12.7 | 12.5                  | 7.7     |                                   | 5.9                 | 13.2              | 9.4                                           | 7.1                                      | 11.2                            | 8.0           | 15.8            | 7.1                                              | 8.8                                                                                        |      |
| N                                | 252  | 48                    | 13      | 2                                 | 34                  | 38                | 245                                           | 28                                       | 188                             | 113           | 76              | 14                                               | 251                                                                                        | 1302 |
| No show / Change of<br>program   | 0.4  |                       |         |                                   | 2.9                 |                   |                                               |                                          | 0.5                             |               |                 |                                                  | 0.4                                                                                        |      |
| Empty return                     | 1.2  |                       |         |                                   |                     |                   | 0.4                                           |                                          | 0.5                             | 3.5           | 1.3             |                                                  | 3.6                                                                                        |      |
| No reaction<br>whatsoever        | 52.8 | 56.3                  | 76.9    |                                   | 55.8                | 65.8              | 57.6                                          | 71.4                                     | 60.1                            | 62.8          | 67.1            | 57.1                                             | 61.4                                                                                       |      |
| Not willing to<br>cooperate      | 2.8  | 2.1                   |         |                                   | 3.4                 | 2.6               | 3.3                                           |                                          | 5.3                             | 2.7           | 2.6             |                                                  | 2.0                                                                                        |      |
| Willing to<br>cooperate          | 42.9 | 41.7                  | 23.1    | 100.0                             | 38                  | 31.6              | 38.8                                          | 28.6                                     | 33.5                            | 31.0          | 28.9            | 42.9                                             | 32.7                                                                                       |      |
| N                                | 252  | 48                    | 13      | 2                                 | 34                  | 38                | 245                                           | 28                                       | 188                             | 113           | 76              | 14                                               | 251                                                                                        | 1302 |
| Final cooperation                | 21.8 | 4.7                   | 0.5     | 0.5                               | 3.3                 | 2.4               | 20.7                                          | 2.8                                      | 16.1                            | 6.6           | 4.3             | 1.9                                              | 14.2                                                                                       | 211  |
| Comment on the<br>key-box form   | 28.8 | 3.0                   | 0.5     | 0.5                               | 2.0                 | 2.5               | 13.6                                          | 2.0                                      | 12.6                            | 9.1           | 6.1             | 1.5                                              | 17.7                                                                                       | 198  |

TABLE 3 - 4

| Nationalities<br>Persons Contacted | Switzerland | German<br>Federal Republic | Austria | Liechtenstein | France | Belgium | Luxembourg | Netherlands | Italy | Spain | Great Britain | Others | Stateless | DK/NA | N    |
|------------------------------------|-------------|----------------------------|---------|---------------|--------|---------|------------|-------------|-------|-------|---------------|--------|-----------|-------|------|
| First contact                      | 64.8        | 9.9                        | 4.3     | 0.5           | 8.0    | 5.5     | 0.1        | 0.8         | 1.8   | 0.1   | 0.4           | 0.9    | 1.0       | 1.2   | 1302 |
| Second contact                     | 65.6        | 9.5                        | 4.2     | 0.6           | 7.9    | 5.1     | 0.1        | 0.9         | 1.9   | 1.1   | 0.4           | 1.0    | 0.9       | 0.8   | 1131 |
| <u>Types of reaction</u>           |             |                            |         |               |        |         |            |             |       |       |               |        |           |       |      |
| No show / Change of<br>program     | 0.1         | 1.6                        |         |               |        |         |            |             |       |       |               |        |           |       | 3    |
| Empty return                       | 0.7         |                            |         |               | 3.8    |         |            |             |       |       |               |        |           |       | 10   |
| No reaction<br>whatsoever          | 87.9        | 83.7                       | 85.7    | 100.0         | 85.6   | 80.6    | 100.0      | 90.9        | 95.7  | 100.0 | 100.0         | 100.0  | 76.9      | 60.0  | 1131 |
| Not willing to<br>cooperate        | 1.7         | 1.6                        | 1.8     |               | 1.0    |         |            |             |       |       |               |        | 7.7       |       | 19   |
| Willing to<br>cooperate            | 9.6         | 13.2                       | 12.5    |               | 9.6    | 19.4    |            | 9.1         | 4.3   |       |               |        | 15.4      | 40.0  | 139  |
| N                                  | 844         | 129                        | 56      | 7             | 104    | 72      | 1          | 11          | 23    | 12    | 5             | 10     | 13        | 15    | 1302 |
| No show / Change of<br>program     | 0.2         |                            |         |               | 1.0    |         |            |             |       |       |               |        |           |       | 4    |
| Empty return                       | 1.7         | 0.8                        | 1.8     | 28.6          |        | 1.4     |            |             |       |       |               |        |           |       | 19   |
| No reaction<br>whatsoever          | 63.4        | 54.3                       | 60.7    | 28.6          | 50.0   | 43.1    | 100.0      | 54.5        | 73.9  | 58.3  | 40.0          |        | 61.5      | 13.3  | 772  |
| Not willing to<br>cooperate        | 2.5         | 3.9                        |         |               | 3.8    | 1.4     |            | 9.1         | 4.3   |       |               |        |           | 33.3  | 38   |
| Willing to<br>cooperate            | 32.2        | 41.1                       | 37.5    | 42.9          | 45.2   | 54.2    |            | 36.4        | 21.7  | 41.7  | 60.0          |        | 38.5      | 53.3  | 469  |
| N                                  | 844         | 129                        | 56      | 7             | 104    | 72      | 1          | 11          | 23    | 12    | 5             | 10     | 13        | 15    | 1302 |
| <u>Final cooperation</u>           | 53.6        | 8.5                        | 5.2     |               | 13.3   | 10.0    |            | 1.4         | 2.4   | 0.5   |               | 1.4    | 0.5       | 3.3   | 211  |
| Comment on the<br>key-box form     | 53.0        | 12.1                       | 3.0     | 0.5           | 12.6   | 11.6    |            | 2.0         | 1.0   | 0.5   |               | 1.0    | 1.5       | 1.0   | 198  |

TABLE 3 - 5

| Residences ►<br>Persons Contacted ▼                     | Zurich | Berne, German | Berne, French | Lucerne | Uri, Schwyz,<br>Unterwalden | Basle | Solothurne | Thurgau | St Gallen | Grisons | Valais, German | Valais, French | Vaud | Geneva | Ticino | Schaffhausen | Appenzell | Fribourg, German | Fribourg, French |
|---------------------------------------------------------|--------|---------------|---------------|---------|-----------------------------|-------|------------|---------|-----------|---------|----------------|----------------|------|--------|--------|--------------|-----------|------------------|------------------|
| First contact                                           | 8.8    | 3.9           | 0.6           | 1.2     | 1.5                         | 1.8   | 1.2        | 1.1     | 2.5       | 1.0     | 0.2            | 2.1            | 7.5  | 0.2    | 1.4    | 0.2          | 0.5       | 0.2              | 1.2              |
| Second contact                                          | 8.8    | 4.3           | 0.7           | 1.3     | 1.3                         | 1.5   | 1.3        | 1.1     | 2.5       | 1.0     | 0.1            | 2.3            | 7.5  | 0.3    | 1.5    | 0.3          | 0.5       | 0.3              | 1.2              |
| <u>Types of reaction</u>                                |        |               |               |         |                             |       |            |         |           |         |                |                |      |        |        |              |           |                  |                  |
| No show / Change of program                             |        |               |               |         |                             |       |            |         |           |         |                |                |      |        |        |              |           |                  |                  |
| Empty return                                            | 0.9    |               |               |         |                             |       |            |         |           |         |                |                | 2.1  |        |        |              |           |                  |                  |
| No reaction whatsoever                                  | 87.0   | 96.1          | 100.0         | 100.0   | 75.0                        | 73.9  | 100.0      | 92.9    | 87.5      | 84.6    | 50.0           | 96.3           | 87.6 | 100.0  | 94.4   | 100.0        | 100.0     | 100.0            | 87.5             |
| Not willing to cooperate                                | 1.7    |               |               |         |                             | 8.7   |            |         | 3.1       |         |                |                |      |        | 5.6    |              |           |                  |                  |
| Willing to cooperate                                    | 10.4   | 3.9           |               |         | 25.0                        | 17.4  |            | 7.1     | 9.4       | 15.4    | 50.0           | 3.7            | 11.3 |        |        |              |           |                  | 12.5             |
| N ►                                                     | 115    | 51            | 8             | 15      | 20                          | 23    | 15         | 14      | 32        | 13      | 2              | 27             | 97   | 3      | 18     | 3            | 6         | 3                | 16               |
| No show / Change of program                             |        |               |               |         |                             |       |            |         | 3.1       |         |                |                |      |        |        |              |           |                  |                  |
| Empty return                                            | 0.9    |               |               | 6.7     | 10.0                        |       |            |         |           |         |                |                |      |        |        | 33.3         |           |                  |                  |
| No reaction whatsoever                                  | 60.0   | 82.4          | 75.0          | 53.3    | 50.0                        | 47.8  | 80.0       | 64.3    | 59.4      | 69.2    |                | 88.9           | 60.8 |        |        | 66.7         | 66.7      | 33.3             | 56.3             |
| Not willing to cooperate                                | 2.6    | 2.0           |               | 13.3    | 5.0                         | 8.7   |            |         | 3.1       |         |                |                | 1.0  |        |        |              |           |                  | 25.0             |
| Willing to cooperate                                    | 36.5   | 15.7          | 25.0          | 26.7    | 35.0                        | 43.5  | 20.0       | 35.7    | 34.4      | 30.8    | 100.0          | 11.1           | 38.1 | 100.0  | 33.3   |              | 33.3      | 66.7             | 18.8             |
| N ►                                                     | 115    | 51            | 8             | 15      | 20                          | 23    | 15         | 14      | 32        | 13      | 2              | 27             | 97   | 3      | 18     | 3            | 6         | 3                | 16               |
| <u>Final cooperation</u><br>Comment on the key-box form | 9.0    | 2.4           | 0.5           | 0.9     | 2.8                         | 6.2   | 1.9        | 0.5     | 1.4       | 0.5     | 0.9            | 0.9            | 6.6  | 0.9    |        |              |           |                  |                  |
|                                                         | 5.6    | 0.5           | 0.5           | 1.0     | 3.0                         | 1.5   | 1.0        | 1.0     | 2.0       |         |                | 0.5            | 7.1  | 0.5    | 2.5    |              |           | 1.0              | 1.5              |

TABLE 3 - 6

| Duration of stay in Bangkok, in nights ►<br>Persons Contacted ▼ | 1    | 2     | 3     | 4     | 5     | 6    | 7    | 8     | 9     | 10    | 11    | 12   | 13   | 14    | 15    | 16 | 17 | 18 | 19 | 20 |
|-----------------------------------------------------------------|------|-------|-------|-------|-------|------|------|-------|-------|-------|-------|------|------|-------|-------|----|----|----|----|----|
| First contact                                                   | 1.3  | 0.1   | 0.1   | 0.5   | 0.2   | 5.0  | 72.9 | 3.0   | 0.3   | 0.7   | 0.5   | 1.2  | 0.2  | 12.4  | 0.2   |    |    |    |    |    |
| Second contact                                                  | 1.4  | 0.1   | 0.1   | 0.6   | 0.2   | 5.0  | 72.4 | 2.7   | 0.4   | 0.8   | 0.5   | 1.2  | 0.1  | 12.6  | 0.2   |    |    |    |    |    |
| <u>Types of reaction</u>                                        |      |       |       |       |       |      |      |       |       |       |       |      |      |       |       |    |    |    |    |    |
| No show / Change of program                                     | 5.9  |       |       |       |       |      |      | 5.1   |       |       |       |      |      |       |       |    |    |    |    |    |
| Empty return                                                    |      |       |       |       |       | 3.1  | 0.8  |       |       |       |       |      |      |       |       |    |    |    |    |    |
| No reaction whatsoever                                          | 94.1 | 100.0 | 100.0 | 100.0 | 100.0 | 87.7 | 86.3 | 76.9  | 100.0 | 100.0 | 100.0 | 87.5 | 50.0 | 88.8  | 100.0 |    |    |    |    |    |
| Not willing to cooperate                                        |      |       |       |       |       | 3.1  | 1.5  | 2.6   |       |       |       |      |      | 1.2   |       |    |    |    |    |    |
| Willing to cooperate                                            |      |       |       |       |       | 6.2  | 11.4 | 15.4  |       |       |       | 12.5 | 50.0 | 9.9   |       |    |    |    |    |    |
| N ►                                                             | 17   | 1     | 1     | 7     | 2     | 65   | 949  | 39    | 4     | 9     | 6     | 16   | 2    | 161   | 2     |    |    |    |    |    |
| No show / Change of program                                     |      |       |       |       | 50.0  |      | 0.1  |       |       |       |       |      |      | 1.2   |       |    |    |    |    |    |
| Empty return                                                    | 5.9  |       |       |       |       |      | 1.4  | 7.7   |       |       |       |      |      | 1.2   |       |    |    |    |    |    |
| No reaction whatsoever                                          | 5.9  |       | 57.1  | 50.0  | 60.0  | 60.3 | 38.5 | 100.0 | 66.6  | 66.6  | 62.5  | 50.0 | 60.2 | 100.0 |       |    |    |    |    |    |
| Not willing to cooperate                                        | 5.9  |       |       |       | 1.5   | 3.4  | 17.9 |       |       |       |       |      | 1.2  |       |       |    |    |    |    |    |
| Willing to cooperate                                            | 82.4 | 100.0 | 100.0 | 42.9  | 38.5  | 34.9 | 53.8 |       | 33.3  | 33.3  | 37.5  | 50.0 | 36.0 |       |       |    |    |    |    |    |
| N ►                                                             | 17   | 1     | 1     | 7     | 2     | 65   | 949  | 39    | 4     | 9     | 6     | 16   | 2    | 161   | 2     |    |    |    |    |    |
| <u>Final cooperation</u><br>Comment on the key-box form         | 1.8  |       |       |       | 3.2   | 76.5 | 4.1  |       | 1.4   | 0.9   |       |      | 10.9 |       |       |    |    |    |    |    |
|                                                                 | 6.1  |       |       |       | 4.5   | 70.2 | 1.5  |       | 0.5   |       | 1.0   |      | 16.2 |       |       |    |    |    |    |    |





TABLE 3 - 7

| Numbers of stay in<br>Bangkok<br>Persons Contacted  |      |      |      |   |   | N    |
|-----------------------------------------------------|------|------|------|---|---|------|
|                                                     | 1    | 2    | 3    | 4 | 5 |      |
| First contact                                       | 95.9 | 3.9  | 0.2  |   |   | 1302 |
| Second contact                                      | 95.9 | 3.9  | 0.2  |   |   | 1131 |
| Types of reaction                                   |      |      |      |   |   |      |
| No show / Change of<br>program                      | 0.1  |      |      |   |   | 3    |
| Empty return                                        | 0.8  | 3.9  |      |   |   | 10   |
| No reaction                                         | 86.9 | 86.3 | 66.7 |   |   | 1131 |
| whatsoever                                          | 1.5  |      |      |   |   | 19   |
| Not willing to<br>cooperate                         | 10.7 | 9.8  | 33.3 |   |   | 139  |
| Willing to<br>cooperate                             |      |      |      |   |   |      |
| N                                                   |      |      |      |   |   |      |
|                                                     | 1248 | 51   | 3    |   |   | 1302 |
| No show / Change of<br>program                      |      |      |      |   |   |      |
| Empty return                                        | 0.3  |      |      |   |   | 4    |
| No reaction                                         | 1.4  | 2.0  |      |   |   | 19   |
| whatsoever                                          | 59.4 | 56.9 | 66.7 |   |   | 772  |
| Not willing to<br>cooperate                         | 2.9  | 3.9  |      |   |   | 38   |
| Willing to<br>cooperate                             | 36.0 | 37.3 | 33.3 |   |   | 469  |
| N                                                   |      |      |      |   |   |      |
|                                                     | 1248 | 51   | 3    |   |   | 1302 |
| Final cooperation<br>Comment on the<br>key-box form |      |      |      |   |   |      |
|                                                     | 96.2 | 3.8  |      |   |   | 211  |
|                                                     | 97.5 | 2.5  |      |   |   | 198  |

TABLE 3 - 8

| Types of prolongation<br>Persons Contacted          |                  |                                     |                                  |                                                 |                  | N    |
|-----------------------------------------------------|------------------|-------------------------------------|----------------------------------|-------------------------------------------------|------------------|------|
|                                                     | Standard Program | Prolongation without<br>arrangement | Prolongation with<br>arrangement | Prolongation with<br>and without<br>arrangement | Special packages |      |
| First contact                                       | 83.3             | 8.8                                 | 7.4                              | 0.4                                             | 0.2              | 1302 |
| Second contact                                      | 83.4             | 8.8                                 | 7.3                              | 0.4                                             | 0.2              | 1131 |
| Types of reaction                                   |                  |                                     |                                  |                                                 |                  |      |
| No show / Change of<br>program                      | 0.3              |                                     |                                  |                                                 |                  | 3    |
| Empty return                                        | 0.9              |                                     |                                  |                                                 |                  | 10   |
| No reaction                                         | 86.9             | 86.8                                | 85.4                             | 100.0                                           | 100.0            | 1131 |
| whatsoever                                          | 15.7             | 2.1                                 |                                  |                                                 |                  | 19   |
| Not willing to<br>cooperate                         | 10.3             | 13.2                                | 12.5                             |                                                 |                  | 139  |
| Willing to<br>cooperate                             |                  |                                     |                                  |                                                 |                  |      |
| N                                                   |                  |                                     |                                  |                                                 |                  |      |
|                                                     | 1085             | 114                                 | 96                               | 5                                               | 2                | 1302 |
| No show / Change of<br>program                      |                  |                                     |                                  |                                                 |                  |      |
| Empty return                                        | 0.2              | 1.8                                 |                                  |                                                 |                  | 4    |
| No reaction                                         | 0.9              | 3.5                                 | 1.0                              | 80.0                                            |                  | 19   |
| whatsoever                                          | 58.8             | 62.3                                | 62.5                             | 20.0                                            | 100.0            | 772  |
| Not willing to<br>cooperate                         | 3.2              | 0.9                                 | 2.1                              |                                                 |                  | 38   |
| Willing to<br>cooperate                             | 36.9             | 31.6                                | 34.4                             |                                                 |                  | 469  |
| N                                                   |                  |                                     |                                  |                                                 |                  |      |
|                                                     | 1085             | 114                                 | 96                               | 5                                               | 2                | 1302 |
| Final cooperation<br>Comment on the<br>key-box form |                  |                                     |                                  |                                                 |                  |      |
|                                                     | 87.2             | 4.7                                 | 8.1                              |                                                 |                  | 211  |
|                                                     | 90.4             | 2.5                                 | 7.1                              |                                                 |                  | 198  |

TABLE 3 - 9

| Hotel<br>Persons Contacted  | 1    | 2     | 3     | 4    | 5     | 6    | 7    | 8     | 9    | 10   | 11    | 12   | 13   | N    |
|-----------------------------|------|-------|-------|------|-------|------|------|-------|------|------|-------|------|------|------|
| First contact               | 1.1  | 1.5   | 0.2   | 11.1 | 1.0   | 17.1 | 8.4  | 1.3   | 5.3  | 23.7 | 1.9   | 22.7 | 4.8  | 1302 |
| Second contact              | 1.1  | 1.7   | 0.2   | 11.0 | 1.1   | 17.4 | 8.4  | 1.5   | 4.5  | 24.0 | 2.2   | 21.8 | 5.0  | 1131 |
| Types of reaction           |      |       |       |      |       |      |      |       |      |      |       |      |      |      |
| No show / Change of program | 7.1  | 1.4   |       |      |       |      |      |       |      |      |       |      |      | 3    |
| Empty return                |      | 1.4   |       |      |       |      |      |       |      | 0.3  |       | 2.4  |      | 10   |
| No reaction whatsoever      | 92.9 | 100.0 | 100.0 | 86.1 | 100.0 | 88.3 | 87.2 | 100.0 | 73.9 | 88.0 | 100.0 | 83.4 | 90.3 | 1131 |
| Not willing to cooperate    |      | 2.8   |       |      |       | 1.8  |      |       | 4.3  | 0.6  |       | 2.0  |      | 19   |
| Willing to cooperate        |      | 8.3   |       |      |       | 9.9  | 12.8 |       | 21.7 | 11.0 |       | 12.2 | 9.7  | 139  |
| N                           |      |       |       |      |       |      |      |       |      |      |       |      |      |      |
| No show / Change of program | 14   | 14    | 19    | 2    | 144   | 13   | 223  | 109   | 17   | 69   | 309   | 25   | 296  | 62   |
| Empty return                |      |       |       |      |       |      |      |       |      | 0.6  |       |      | 3.2  | 4    |
| No reaction whatsoever      | 5.3  | 1.4   | 7.7   | 2.2  |       |      |      |       |      | 2.6  |       | 0.7  |      | 19   |
| Not willing to cooperate    | 73.7 | 100.0 | 56.9  | 46.2 | 63.7  | 73.4 | 76.5 | 47.8  | 57.0 | 60.0 | 55.7  | 71.0 |      | 772  |
| Willing to cooperate        | 7.1  |       | 4.9   | 15.4 | 5.4   | 4.6  |      |       | 1.6  |      | 1.4   | 3.2  |      | 38   |
|                             | 92.9 | 21.1  | 36.8  | 30.8 | 28.7  | 22.0 | 23.5 | 52.2  | 38.2 | 40.0 | 42.2  | 22.6 |      | 469  |
| N                           |      |       |       |      |       |      |      |       |      |      |       |      |      |      |
| No show / Change of program | 14   | 19    | 2     | 144  | 13    | 223  | 109  | 17    | 69   | 309  | 25    | 296  | 62   | 1302 |
| Empty return                |      |       |       |      |       |      |      |       |      |      |       |      |      |      |
| No reaction whatsoever      |      |       |       |      |       |      |      |       |      |      |       |      |      |      |
| Not willing to cooperate    |      |       |       |      |       |      |      |       |      |      |       |      |      |      |
| Willing to cooperate        |      |       |       |      |       |      |      |       |      |      |       |      |      |      |
| Final cooperation           |      |       |       |      |       |      |      |       |      |      |       |      |      |      |
| Comment on the key-box form | 1.4  | 1.4   |       | 10.4 |       | 21.8 | 9.5  | 0.9   | 6.6  | 18.0 | 0.5   | 25.1 | 4.3  | 211  |
|                             | 6.1  | 1.0   |       | 8.6  |       | 13.1 | 4.5  |       | 4.5  | 23.7 | 3.5   | 29.3 | 5.6  | 198  |

TABLE 3 - 10

| Room-Types<br>Persons Contacted | Single | 1/2 Double | Double | Triple | N    |
|---------------------------------|--------|------------|--------|--------|------|
| First contact                   | 30.9   | 62.2       | 2.8    | 4.1    | 1302 |
| Second contact                  | 30.3   | 63.6       | 2.6    | 3.5    | 1131 |
| Types of reaction               |        |            |        |        |      |
| No show / Change of program     | 0.7    |            |        |        | 3    |
| Empty return                    | 0.5    | 0.6        |        | 5.6    | 10   |
| No reaction whatsoever          | 85.3   | 88.8       | 80.6   | 74.1   | 1131 |
| Not willing to cooperate        | 1.5    | 1.2        | 5.6    | 1.9    | 19   |
| Willing to cooperate            | 11.9   | 9.4        | 13.9   | 18.5   | 139  |
| N                               |        |            |        |        |      |
| No show / Change of program     | 402    | 810        | 36     | 54     | 1302 |
| Empty return                    | 0.5    | 0.2        |        |        | 4    |
| No reaction whatsoever          | 1.5    | 1.6        |        |        | 19   |
| Not willing to cooperate        | 59.2   | 59.1       | 61.1   | 61.1   | 772  |
| Willing to cooperate            | 2.2    | 3.3        | 2.8    | 1.9    | 38   |
|                                 | 36.6   | 35.7       | 36.1   | 37.0   | 469  |
| N                               |        |            |        |        |      |
| No show / Change of program     | 402    | 810        | 36     | 54     | 1302 |
| Empty return                    |        |            |        |        |      |
| No reaction whatsoever          |        |            |        |        |      |
| Not willing to cooperate        |        |            |        |        |      |
| Willing to cooperate            |        |            |        |        |      |
| Final cooperation               |        |            |        |        |      |
| Comment on the key-box form     | 26.1   | 69.7       | 0.9    | 3.3    | 211  |
|                                 | 32.3   | 58.1       | 4.0    | 5.6    | 198  |

TABLE 3 - 11

| Agencies<br>Persons Contacted<br>▼ | From Zurich |      |      |          | DK/NA | N    |
|------------------------------------|-------------|------|------|----------|-------|------|
|                                    | 1           | 2    | 3    | From CMB |       |      |
| First contact                      | 15.2        | 27.0 | 39.9 | 17.1     | 0.8   | 1302 |
| Second contact                     | 15.7        | 27.1 | 39.4 | 16.7     | 1.0   | 1131 |
| Types of reaction                  |             |      |      |          |       |      |
| No show / Change of program        | 0.6         |      |      |          |       | 3    |
| Empty return                       | 1.0         | 0.6  | 2.3  |          |       | 10   |
| No reaction whatsoever             | 89.9        | 87.5 | 58.8 | 85.1     | 100.0 | 1131 |
| Not willing to cooperate           | 1.5         | 0.6  | 1.3  | 3.2      |       | 19   |
| Willing to cooperate               | 7.6         | 12.0 | 11.7 | 9.5      |       | 139  |
| N                                  |             |      |      |          |       |      |
|                                    | 198         | 351  | 520  | 222      | 11    | 1302 |
| No show / Change of program        |             |      |      |          |       |      |
| Empty return                       | 0.6         |      |      |          |       | 4    |
| No reaction whatsoever             | 0.5         | 1.1  | 1.9  | 1.8      |       | 19   |
| Not willing to cooperate           | 65.2        | 61.8 | 55.8 | 59.5     | 36.4  | 772  |
| Willing to cooperate               | 2.5         | 2.6  | 2.3  | 4.5      | 18.2  | 38   |
|                                    | 31.8        | 33.9 | 39.6 | 34.2     | 45.5  | 469  |
| N                                  |             |      |      |          |       |      |
|                                    | 198         | 351  | 520  | 222      | 11    | 1302 |
| Final cooperation                  |             |      |      |          |       |      |
| Comment on the key-box form        | 10.4        | 30.8 | 34.1 | 24.2     | 0.5   | 211  |
|                                    | 13.1        | 28.3 | 37.4 | 18.7     | 2.5   | 198  |

TABLE 3 - 12

| Extensions<br>Persons Contacted | Thailand Roundtrip |        |        |       |      |          |      |       |           |   |
|---------------------------------|--------------------|--------|--------|-------|------|----------|------|-------|-----------|---|
|                                 | Chiang Mai         | Phuket | Penang | Burma | Bali | Hongkong | Laos | Nepal | Singapore |   |
| First contact                   | 4                  | 22     | 1      | 7     | 4    | 3        | 1    | 3     | 5         | 3 |
| Second contact                  | 2                  | 21     | 1      | 6     | 2    | 3        | 1    | 2     | 5         | 3 |
| Types of reaction               |                    |        |        |       |      |          |      |       |           |   |
| No show / Change of program     | 2                  | 21     |        |       |      |          |      |       |           |   |
| Empty return                    |                    |        |        |       |      |          |      |       |           |   |
| No reaction whatsoever          | 2                  | 1      | 1      | 6     | 4    | 3        | 1    | 2     | 5         | 3 |
| Not willing to cooperate        |                    |        |        |       |      |          |      |       |           |   |
| Willing to cooperate            |                    |        | 1      |       |      |          |      | 1     |           |   |
| N                               |                    |        |        |       |      |          |      |       |           |   |
|                                 | 4                  | 22     | 1      | 7     |      |          |      |       |           |   |
| No show / Change of program     |                    |        |        |       |      |          |      |       |           |   |
| Empty return                    |                    |        |        |       |      |          | 2    |       |           |   |
| No reaction whatsoever          | 2                  | 13     | 1      | 3     | 2    | 3        |      | 5     | 3         |   |
| Not willing to cooperate        |                    |        |        |       |      |          | 1    |       |           |   |
| Willing to cooperate            | 2                  | 7      |        | 4     |      |          |      |       |           |   |
| N                               |                    |        |        |       |      |          |      |       |           |   |
|                                 | 4                  | 22     | 1      | 7     |      |          |      |       |           |   |
| Final cooperation               |                    |        |        |       |      |          |      |       |           |   |
| Comment on the key-box form     | 4                  |        |        | 1     |      |          |      |       |           |   |
|                                 | 2                  |        |        |       |      |          |      | 1     |           |   |

Figures shown are number of persons .

Figures shown are number of persons.





## APPENDIX 4

Major and minor occupational groups used in this paper.



MAJOR AND MINOR GROUPS

- Major Group 1: Workers Not Classifiable by Occupation
- 1.1. Workers not reporting any occupation
  - 1.2. Workers reporting occupations unidentifiable or inadequately described
  - 1.3. New workers seeking employment
- Major Group 2: Students (all ages, e.g. pupils, college-, university students etc.)
- Major Group 3: Persons retired from occupational activities
- Major Group 4: Housewives/ Housemen
- Major Group 5: Professional, Technical and Related Workers
- 5.1. Physical Scientists and Related Workers
  - 5.2. Architects, Engineers and Related Workers
  - 5.3. Aircraft and Ships' Officers
  - 5.4. Life Scientists and Related Technicians
  - 5.5. Medical, Dental, Veterinary and Related Workers
  - 5.6. Statisticians, Mathematicians, Systems Analysts and Related Workers
  - 5.7. Economists
  - 5.8. Accountants
  - 5.9. Jurists
  - 5.10. Teachers
  - 5.11. Workers in Religion
  - 5.12. Authors, Journalists and Related Workers
  - 5.13. Sculptors, Painters, Photographers and Related Creative Artists
  - 5.14. Composers and Performing Artists
  - 5.15. Athletes, Sportsmen and Related Workers
  - 5.16. Professional, Technical and Related Workers Not Elsewhere Classified
- Major Group 6: Administrative and Managerial Workers
- 6.1. Legislative Officials and Government Administrators
  - 6.2. Managers
- Major Group 7: Clerical and Related Workers
- 7.1. Clerical Supervisors
  - 7.2. Government Executive Officials
  - 7.3. Stenographers, Typists and Card- and Tape-Punching Machine Operators
  - 7.4. Bookkeepers, Cashiers and Related Workers
  - 7.5. Computing Machine Operators
  - 7.6. Transport and Communications Supervisors
  - 7.7. Transport Conductors
  - 7.8. Mail Distribution Clerks
  - 7.9. Telephone and Telegraph Operators
  - 7.10. Clerical and Related Workers Not Elsewhere Classified
- Major Group 8: Sales Workers
- 8.1. Managers (Wholesale and Retail Trade)
  - 8.2. Working Proprietors (Wholesale and Retail Trade)
  - 8.3. Sales Supervisors and Buyers
  - 8.4. Technical Salesmen, Commercial Travellers and Manufacturers' Agents
  - 8.5. Insurance, Real Estate, Securities and Business Services Salesmen and Auctioneers
  - 8.6. Salesmen, Shop Assistants and Related Workers
  - 8.7. Sales Workers Not Elsewhere Classified
- Major Group 9: Service Workers
- 9.1. Managers (Catering and Lodging Services)
  - 9.2. Working Proprietors (Catering and Lodging Services)
  - 9.3. Housekeeping and Related Service Supervisors
  - 9.4. Cooks, Waiters, Bartenders and Related Workers
  - 9.5. Maids and Related Housekeeping Service Workers Not Elsewhere Classified
  - 9.6. Building Caretakers, Charworkers, Cleaners and Related Workers
  - 9.7. Launderers, Dry-Cleaners and Pressers
  - 9.8. Hairdressers, Barbers, Beauticians and Related Workers
  - 9.9. Protective Service Workers
  - 9.10. Service Workers Not Elsewhere Classified

Major Group 10: Agricultural, Animal Husbandry and Forestry Workers, Fishermen and Hunters

- 10.1. Farm Managers and Supervisors
- 10.2. Farmers
- 10.3. Agricultural and Animal Husbandry Workers
- 10.4. Forestry Workers
- 10.5. Fishermen, Hunters and Related Workers

Major Group 11: Production and Related Workers, Transport Equipment Operators and Labourers

- 11.1. Production Supervisors and General Foremen
- 11.2. Miners, Quarrymen, Well Drillers and Related Workers
- 11.3. Metal Processers
- 11.4. Wood Preparation Workers and Paper Makers
- 11.5. Chemical Processers and Related Workers
- 11.6. Spinners, Weavers, Knitters, Dyers and Related Workers
- 11.7. Tanners, Fellmongers and Pelt Dressers
- 11.8. Food and Beverage Processers
- 11.9. Tobacco Preparers and Tobacco Product Makers
- 11.10. Tailors, Dressmakers, Sewers, Uphosterers and Related Workers
- 11.11. Shoemakers and Leather Goods Makers
- 11.12. Cabinetmakers and Related Woodworkers
- 11.13. Stone Cutters and Carvers
- 11.14. Blacksmiths, Toolmakers and Machine-Tool Operators
- 11.15. Machinery Fitters, Machine Assemblers and Precision Instrument Makers (except
- 11.16. Electrical Fitters and Related Electrical and Electronics Workers
- 11.17. Broadcasting Station and Sound Equipment Operators and Cinema Projectionists
- 11.18. Plumbers, Welders, Sheet Metal and Structural Metal Preparers and Erectors
- 11.19. Jewellery and Precious Metal Workers
- 11.20. Glass Formers, Potters and Related Workers
- 11.21. Rubber and Plastics Product Makers
- 11.22. Paper and Paperboard Products Makers
- 11.23. Printers and Related Workers
- 11.24. Painters
- 11.25. Production and Related Workers Not Elsewhere Classified
- 11.26. Bricklayers, Carpenters and Other Construction Workers
- 11.27. Stationary Engine and Related Equipment Operators
- 11.28. Material-Handling and Related Equipment Operators, Dockers and Freight Handlers
- 11.29. Transport Equipment Operators
- 11.30. Labourers Not Elsewhere Classified

Source: INTERNATIONAL LABOUR OFFICE ILO: "International Standard Classification of Occupations",  
Revised Edition 1968, Geneva 1969.



## APPENDIX 5

Socio-economic status definitions.



The following descriptions of socio-economic status classifications are for a five-class division of the population, based on the general status of the household. Since the status described is a combination of both social factors and economic factors, the assessment made by the interviewer must be based on several dimensions. Of the many available four have been chosen: economic, social, occupation of head of household or chief wage earner, and educational level of the head of household or chief wage earner.

The economic aspects are centered around the relative distance of the household from subsistence living--the farther above subsistence, the higher the economic status. Note that this distance is relative to the subsistence standards obtaining in the country of survey.

The social dimension is based mainly on the degree of acceptance by other members of the population, and in most Asian cultures whether the people in the subject household "pay respect" to others (and whom) or whether "respect is paid" to them (and by whom).

Occupation and educational level are keyed to those of the head of household, or chief wage earner, since in most Asian societies much of the family's status is determined by the status of the patriarchal head of the family. For households where the household head is retired, his occupation at time of retirement should be the determining occupation used.

As a basic rule of thumb, a household should be classified in a status class where they qualify on three or more of the four dimensional descriptions. As a general rule if they meet requirements on only two of the four dimension descriptions in a class they should be classified in the next lower class.

There will of course be some borderline cases. The deciding factors should be the economic and social dimensions, i. e., if a household is respected by nearly everyone, and it is in the top income bracket, the household should be classified "A", even if it does not meet educational and occupational requirements. Conversely, a family which has no income, is destitute, and is respected by no one should be classified "E", even if the husband is a retired Ph.D.

#### Class A (Upper Class) :

These are the people in the country to whom nearly everyone looks up and respects. Economically they are able to spend without consideration of cost; their housing is the best available in the community; they possess most of the luxury goods available, and have probably traveled abroad; they are probably in the upper 4-8% annual income brackets. Socially their families are well known and respected, and their family name opens doors.

Occupationally the head of the household will have a position which has policy-making responsibilities on the national level, or of national impact.

Educationally the head of household has a post-graduate degree.

#### Class B (Upper Middle Class) :

These are in the upper strata of the nation, but are not the most respected.

Economically they have a fully comfortable life, housing well above average, can afford luxuries, but must weigh cost considerations.

Socially they can mingle with nearly anyone in the country, and while they would feel generally at ease in a cabinet minister's company, he would not be among their close acquaintances.

Occupationally the head of household will have a position generally falling into the professions of subordinate management, or a line or staff administrative official -- or top official of small businesses with the highest local or regional impact.

Educationally the head of household has attended college or university, and usually has at least a university degree.

#### Class C (Lower Middle Class) :

This is the broad group of "white collars" -- the broad base of those who live more by brains than brawn.

Economically they have more than a subsistence living, but the "C's" are often worse off economically than many of the "D's". Their housing is usually adequate, and they are likely to consider such things as inside bathrooms, electricity, and screened sleeping quarters as necessities rather than luxuries. Their homes tend to be neat and well cared for, but often not of high intrinsic value.

The household income is somewhere close to the average for their community, and nationwide these families will be included in about the middle 50% of all families according to income and expenditure.

Occupations of heads of household include: most of the white collar civil service, most teachers, nurses, medical technicians, laboratory workers, engineering draftsmen, accountants (although chartered accountants or CPA's are usually Class B), sales and office workers, owners and managers of small businesses such as garages, service stations, neighborhood retail stores and the like; military junior officers, and sometimes the higher ranking enlisted personnel would be included in this class -- particularly if they are technicians.

Socially the "C's" probably have more close friends among the B's than among the D's, and their children are likely to be transiting to a higher SES class.

Educationally the head of household has at least a High School education or its equivalent, and may well have a couple of years of technical or normal school training in addition.



Class D (Upper-Lower Class) :

Overall, the households in this class are filled with the higher level artisans, skilled labor and shop foremen: the elite of the less well educated, who have succeeded on their hard work and ability.

Economically they are well above subsistence level (and quite often may be better off financially than Class C families), and their household income will be somewhere between the lowest 25 % and the lowest 50-60 % of all families. Their homes often show more attention to luxuries than to necessities: it would not be unusual to find a TV set, but no inside toilet, for example in a D home.

Socially what respect they have from others is more likely to stem from their own personal reputation for ability, diligence, or integrity, than from any family connections.

Occupations include almost all skilled laborers, artisans and mechanics, electricians, tailors, farmers, fishermen, truck drivers, foremen, gang bosses, supervisors of unskilled labor, household servants, waiters, barbers, military enlisted personnel.

Educationally they may have completed no more than elementary or even primary school, but they are undoubtedly literate, and have had extended on-the-job or work-associated training.

Class E (Lower-Lower Class) :

These people are the bottom of the scale.

Economically they are on subsistence level or less. Their housing is sub-standard for their community, and is often little more than a shack or palm-leaf lean-to. At least 95% of what little they earn goes for food, a limited amount of clothing, and some sort of shelter.

Socially they are looked down on by everyone except those in their own SES class, and everyone is in a position to boss them around.

The occupation of the head of household is invariably unskilled labor -- if he is not unemployed: long-shoreman, coolie, sweeper, janitor, office boy, highway worker, farm laborer or operator of a subsistence farm holding.

He has little or no education, and may be illiterate.

(BUSINESS RESEARCH LIMITED, 1966, 1971)



## APPENDIX 6

The questionnaires.

## Cher Visiteur de la Thaïlande

Comment vous sentez-vous à Bangkok ?

Quelles sont vos impressions

de la ville

des Thaïlandais

des Thaïlandaises

de la cuisine Thai ?

Reviendrez vous à Bangkok ?

Nous souhaiterions que vous nous réserviez  
un instant, le jour de votre départ.

Lieu : Salle du départ à l'aéroport de Bangkok

Heure : Après le contrôle des passeports

OUI

☐

Je repars le \_\_\_\_\_.  
Si oui, glissez la carte verte ci-jointe  
dans votre passeport et donnez la,  
lors du contrôle des passeports, à la  
personne suisse présente.

Non

☐

Redéposez, s v p, cette feuille dans votre  
casier !

Nous vous remercions de votre  
collaboration.

(Réponse et commentaires restent strictement confidentiels.)

K. Callegari, Département de Géographie,  
Université de Zurich, Suisse.



Prenez les photos, s.v.p.

Beaucoup de photos ne vous diront rien au premier abord.

Ne les rejetez pas mais, au contraire, regardez les toutes!



Quelles photos représentent des quartiers du centre-ville?

Les photos suivantes représentent des quartiers du centre de la ville :

les numéros

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

1

Toutes les photos ne vous plaisent peut-être pas.

Quelles photos pourraient être de vous?

Quelles photos auriez-vous pu prendre vous-même ?

IMPORTANT: Seul le choix du sujet est tranchant, quel motif vous aimez prendre en particulier. La qualité des photos jointes, si vous avez été réellement ou non sur le lieu de la photo, ne jouent aucun rôle.

Les photos suivantes pourraient venir de moi. Je trouve les sujets intéressants, sympathiques, beaux, valables:

les numéros

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2

Formez plusieurs groupes de photos semblables, s.v.p.!

Quelle est leur similitude?

Chaque groupe doit être composé de 6 à 10 photos.

J'ai formé le groupe ① d'après ce point de vue:

Maisons flottantes

Les numéros suivants appartiennent à ce groupe:

3 / 11 / 25 / 26 / 31 / 37 / 38

J'ai formé le groupe ① d'après ce point de vue:

Les numéros suivants appartiennent à ce groupe:

J'ai formé le groupe ⑥ d'après ce point de vue:

Les numéros suivants appartiennent à ce groupe:

J'ai formé le groupe ② d'après ce point de vue:

Les numéros suivants appartiennent à ce groupe:

J'ai formé le groupe ⑦ d'après ce point de vue:

Les numéros suivants appartiennent à ce groupe:

J'ai formé le groupe ③ d'après ce point de vue:

Les numéros suivants appartiennent à ce groupe:

J'ai formé le groupe ⑧ d'après ce point de vue:

Les numéros suivants appartiennent à ce groupe:

J'ai formé le groupe ④ d'après ce point de vue:

Les numéros suivants appartiennent à ce groupe:

J'ai formé le groupe ⑤ d'après ce point de vue:

Les numéros suivants appartiennent à ce groupe:

3

Prenez maintenant les photos, s.v.p.

beaucoup de photos ne vous diront rien à priori.  
Ne les ignorez pas mais au contraire, regardez les toutes!

Classez les photos en 3 groupes, s.v.p.

1er groupe: Les photos ont été prises à Bangkok.

2ème groupe: Les photos ont été peut-être prises à Bangkok.

3ème groupe: Les photos n'ont pas été prises à Bangkok.

Je suis sûr que les photos suivantes ont été prises à Bangkok:

les numéros \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Je pense que les photos suivantes ont peut-être été prises à Bangkok:

les numéros \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Je suis sûr que les photos suivantes n'ont pas été prises à Bangkok:

les numéros \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Nous voulons encore une fois classer les photos, mais cette fois en 5 groupes différents.

Chaque photo ne doit appartenir qu'à un seul des 5 groupes.

Vous devez faire correspondre à chaque photo une des remarques suivantes:

- 1 Limites entre différentes zones.  
Ces bâtiments, rues, canaux, champs, haies etc. servent de démarcations.  
Les zones situées de part et d'autre des limites sont différentes.
- 2 Zones particulièrement exploitées.
- 3 Unité (extraordinaire) des zones.
- 4 La zone reproduite pourrait servir de point d'orientation.
- 5 Signes distinctifs propre à la ville:  
Ces points caractérisent Bangkok.

Groupe ①: Photos numéros \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Groupe ②: Photos numéros \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Groupe ③: Photos numéros \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Groupe ④: Photos numéros \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Groupe ⑤: Photos numéros \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

J'aurais bien vu les zones reproduites sur les photos numéros \_\_\_\_\_

Je ne retournerai plus dans les quartiers suivants et les déconseillerai:  
les numéros \_\_\_\_\_

## APPENDIX 7

The variables used in the computations: numbering, denotation, units, kind of measurement, sources.





Sphere I: Photo-scene compositional variables

Numbering: I = Simple variables: numbers 101 ff.  
 Index variables : numbers 401 ff.  
 II = Running numbers 1 to 22

| Numbering<br>I | II | Denotation or<br>construction of variable               | Scope<br>unit | Unit of<br>measurement |
|----------------|----|---------------------------------------------------------|---------------|------------------------|
| 401            | 1  | V104 + V107 + V109 + V110                               | photograph    | grid square            |
| 402            | 2  | V104 + V110                                             | photograph    | grid square            |
| 403            | 3  | V102 + V105                                             | photograph    | grid square            |
| 101            | 4  | Area sky                                                | photograph    | grid square            |
| 102            | 5  | open spaces                                             | photograph    | grid square            |
| 103            | 6  | water                                                   | photograph    | grid square            |
| 104            | 7  | housing                                                 | photograph    | grid square            |
| 105            | 8  | streets                                                 | photograph    | grid square            |
| 106            | 9  | traffic (vehicles)                                      | photograph    | grid square            |
| 107            | 10 | utilities                                               | photograph    | grid square            |
| 108            | 11 | vegetation                                              | photograph    | grid square            |
| 109            | 12 | signs (traffic signs,<br>advertising space, billboards) | photograph    | grid square            |
| 110            | 13 | monuments, bridges, walls                               | photograph    | grid square            |
| 111            | 14 | persons                                                 | photograph    | grid square            |
| 112            | 15 | foreground                                              | photograph    | grid square            |
| 113            | 16 | Perimeter<br>foreground                                 | photograph    | grid square<br>length  |
| 114            | 17 | Area middleground                                       | photograph    | grid square            |
| 115            | 18 | Perimeter<br>middleground                               | photograph    | grid square<br>length  |
| 116            | 19 | Area background                                         | photograph    | grid square            |
| 117            | 20 | Perimeter<br>background                                 | photograph    | grid square<br>length  |
| 118            | 21 | Photo-scene compositional value                         | photograph    | see chap. 3.3. (p. 96) |

Sphere II: Physical-functional variables

Numbering: I = Simple variables : numbers 201 ff.  
Index variables : numbers 501 ff.  
Auxiliary variables : numbers 601 ff.  
II = Running numbers 22 to 102

| Numbering<br>I | II | Denotation or<br>construction of variable            | Scope<br>unit       | Unit of<br>measurement                              | Source  |
|----------------|----|------------------------------------------------------|---------------------|-----------------------------------------------------|---------|
| 201            | 22 | Population density                                   | Subdistrict         | Number of people<br>per sq.km.                      | BM 2    |
| 202            | 23 | Housing density                                      | Subdistrict         | Number of buildings<br>per sq.km.                   | BM 2    |
| 203            | 24 | Traffic desire                                       | Traffic<br>district |                                                     | MTP 3   |
| 204            | 25 | Mobility in public transport                         | Traffic<br>district |                                                     | MTP 4/8 |
| 205            | 26 | Mobility in private vehicles                         | Traffic<br>district |                                                     | MTP 4/8 |
| 206            | 27 | Car density                                          | Traffic<br>district | Number of cars<br>per 1 000 inhabitants             | MTP 3   |
| 207            | 28 | Food traders, density                                | District            | Number of food<br>traders per 10 000<br>inhabitants | BM 12   |
| 208            | 29 | Traders (general), density                           | District            | Number of traders<br>per 10 000 inhabitants         | BM 12   |
| 209            | 30 | Hairdressers and barbers, density                    | District            | Number of -<br>per 10 000 inhabitants               | BM 12   |
| 210            | 31 | Food traders: municipal fees                         | District            | Fees per inhabitant,<br>in Baht                     | BM 12   |
| 211            | 32 | Traders (general): municipal fees                    | District            | Fees per inhabitant,<br>in Baht                     | BM 12   |
| 212            | 33 | Food traders: municipal fees                         | District            | Fees per Food trader,<br>in Baht                    | BM 12   |
| 213            | 34 | Traders (general): municipal fees                    | District            | Fees per Trader,<br>in Baht                         | BM 12   |
| 214            | 35 | Markets, density                                     | District            | Number of markets<br>per sq.km.                     | BM 13   |
| 215            | 36 | Markets: municipal fees                              | District            | Fees per market,<br>in Baht                         | BM 13   |
| 216            | 37 | Markets: average number of stalls                    | District            | Average number of<br>stalls per market              | BM 13   |
| 217            | 38 | Eating houses, street cafes,<br>restaurants, density | District            | Number of - per<br>sq.km.                           | BM 10   |

| Numbering<br>I | II | Denotation or<br>construction of variable                      | Scope<br>unit       | Unit<br>measurement                                    | Source        |
|----------------|----|----------------------------------------------------------------|---------------------|--------------------------------------------------------|---------------|
| 218            | 39 | Green grocers and grocers,<br>density                          | District            | Number of - per<br>sq.km.                              | BM 12         |
| 219            | 40 | Travel agencies, density                                       | District            | Number of - per<br>sq.km.                              | TOT<br>mimeo. |
| 601            | 41 | Leading hotels                                                 | Subdistrict         | Number of -                                            | TOT 1         |
| 602            | 42 | Service places                                                 | Subdistrict         | Number of -                                            | BM 11         |
| 220            | 43 | Parking space                                                  | Traffic<br>district | Number of - per<br>sq.km.                              | MTP 8         |
| 221            | 44 | Job opportunities per parking<br>space                         | Traffic<br>district | Number of - per<br>parking space                       | MTP 5         |
| 222            | 45 | Population per parking space                                   | Traffic<br>district | Number of inhabitants<br>per parking space             | MTP 5         |
| 223            | 46 | Parking demand                                                 | Traffic<br>district |                                                        | MTP 5         |
| 224            | 47 | Ratio: Trip ends versus transfers                              | Traffic<br>region   |                                                        | MTP 8         |
| 225            | 48 | New buildings built 1973/74                                    | District            | % of total number<br>of buildings, year<br>ending 1974 | BM 4/5        |
| 226            | 49 | New buildings built 1973/74:<br>1, 1½ stories                  | District            | Number of - per<br>sq.km.                              | BM 4          |
| 227            | 50 | New buildings built 1973/74:<br>2, 2½ stories                  | District            | ditto                                                  | BM 4          |
| 228            | 51 | New buildings built 1973/74:<br>3, 3½ stories                  | District            | ditto                                                  | BM 4          |
| 229            | 52 | New buildings built 1973/74:<br>4 - 6 stories                  | District            | ditto                                                  | BM 4          |
| 230            | 53 | New buildings built 1973/74:<br>more than 6 stories            | District            | ditto                                                  | BM 4          |
| 231            | 54 | New buildings built 1973/74:<br>brick and concrete             | District            | ditto                                                  | BM 5          |
| 232            | 55 | New buildings built 1973/74:<br>wood                           | District            | ditto                                                  | BM 5          |
| 233            | 56 | New buildings built 1973/74:<br>brick, concrete and wood mixed | District            | ditto                                                  | BM 5          |
| 234            | 57 | New buildings built 1973/74:<br>other construction materials   | District            | ditto                                                  | BM 5          |
| 235            | 58 | Ratio: total area per built-up<br>area, year ending 1974       | District            | Ratio                                                  | BM 5          |
| 501            | 59 | V231 (in sq.m.) : V 96                                         | District            | Ratio                                                  | BM 5/2        |
| 502            | 60 | V232 (in sq.m.) : V 96                                         | District            | Ratio                                                  | BM 5/2        |
| 503            | 61 | V233 (in sq.m.) : V 96                                         | District            | Ratio                                                  | BM 5/2        |
| 504            | 62 | V234 (in sq.m.) : V 96                                         | District            | Ratio                                                  | BM 5/2        |

| Numbering<br>I | II | Denotation or<br>construction of variable                                          | Scope<br>unit | Unit of<br>measurement                      | Source                                        |
|----------------|----|------------------------------------------------------------------------------------|---------------|---------------------------------------------|-----------------------------------------------|
| 505            | 63 | New buildings built 1973/74:<br>Residences (in sq. m.) : V96                       | District      | Ratio                                       | BM 4/2                                        |
| 506            | 64 | New buildings built 1973/74:<br>Residences within/above shops<br>(in sq. m.) : V96 | District      | Ratio                                       | BM 4/2                                        |
| 507            | 65 | New buildings built 1973/74:<br>Shops (in sq. m.) : V96                            | District      | Ratio                                       | BM 4/2                                        |
| 508            | 66 | New markets built 1973/74<br>(in sq. m.) : V96                                     | District      | Ratio                                       | BM 4/2                                        |
| 509            | 67 | New factories built 1973/74<br>(in sq. m.) : V96                                   | District      | Ratio                                       | BM 4/2                                        |
| 510            | 68 | New office buildings and banks<br>built 1973/74 (in sq. m.) : V96                  | District      | Ratio                                       | BM 4/2                                        |
| 511            | 69 | New warehouses built 1973/74<br>(in sq. m.) : V96                                  | District      | Ratio                                       | BM 4/2                                        |
| 512            | 70 | New hotels built 1973/74<br>(in sq. m.) : V96                                      | District      | Ratio                                       | BM 4/2                                        |
| 513            | 71 | New buildings built 1973/74:<br>other purposes (in sq. m.) : V96                   | District      | Ratio                                       | BM 4/2                                        |
| 514            | 72 | New buildings built 1973:<br>Total (in sq. m.) : V96                               | District      | Ratio                                       | BM 4/2                                        |
| 515            | 73 | New buildings built 1974:<br>Total (in sq. m.) : V96                               | District      | Ratio                                       | BM 4/2                                        |
| 516            | 74 | V514 + V515                                                                        | District      | Ratio                                       | BM 4/2                                        |
| 603            | 75 | "Tourist information":<br>Points of interest                                       | Subdistrict   | Number of points<br>of interest             | TOT map                                       |
| 604            | 76 | "Tourist information":<br>Points of interest, only Wat,<br>palaces and stadiums    | Subdistrict   | Number of<br>specific points<br>of interest | TOT map                                       |
| 236            | 77 | Urban development model, type 1975                                                 | Subdistrict   | Code<br>(ordinal scale)                     | MTP 8                                         |
| 237            | 78 | Urban development model, type 1980                                                 | Subdistrict   | Code<br>(ordinal scale)                     | MTP 8                                         |
| 605            | 79 | Total population                                                                   | District      | Number of<br>inhabitants                    | BM 2/3                                        |
| 606            | 80 | Total number of buildings                                                          | District      | Number of<br>buildings                      | BM 2                                          |
| 607            | 81 | Restaurant, bars                                                                   | Subdistrict   | Number of<br>restaurants and<br>bars        | Tour op<br>operators<br>recommen-<br>dations/ |
| 238            | 82 | Ethnic groups: Thai                                                                | Subdistrict   | % of total<br>population                    | "Was, Wie, W<br>BRL 1/2                       |



| Numbering<br>I | II  | Denotation or<br>construction of variable                       | Scope<br>unit | Unit of<br>measurement                      | Source  |
|----------------|-----|-----------------------------------------------------------------|---------------|---------------------------------------------|---------|
| 239            | 83  | Ethnic groups: Chinese                                          | Subdistrict   | % of total<br>population                    | BRL 1/2 |
| 240            | 84  | Ethnic groups: Farang and<br>"others"                           | Subdistrict   | % of total<br>population                    | BRL 1/2 |
| 241            | 85  | Ethnic groups: DK/NA                                            | Subdistrict   | % of total<br>population                    | BRL 1/2 |
| 242            | 86  | Socio-economic status A                                         | Subdistrict   | % of total<br>population                    | BRL 1/2 |
| 243            | 87  | Socio-economic status B                                         | Subdistrict   | % of total<br>population                    | BRL 1/2 |
| 244            | 88  | Socio-economic status C                                         | Subdistrict   | % of total<br>population                    | BRL 1/2 |
| 245            | 89  | Socio-economic status D                                         | Subdistrict   | % of total<br>population                    | BRL 1/2 |
| 246            | 90  | Socio-economic status E                                         | Subdistrict   | % of total<br>population                    | BRL 1/2 |
| 247            | 91  | Car owners                                                      | Subdistrict   | % of total<br>population                    | BRL 1/2 |
| 248            | 92  | Owners of motorcycles and<br>scooters                           | Subdistrict   | % of total<br>population                    | BRL 1/2 |
| 608            | 93  | "Tourist information":<br>Points of interest                    | Subdistrict   | Number of points<br>of interest             | TOT map |
| 609            | 94  | "Tourist information":<br>Wat <sup>1)</sup> , palaces, stadiums | Subdistrict   | Number of<br>specific points<br>of interest | TOT map |
| 610            | 95  | "Tourist information":<br>Restaurants, bars                     | Subdistrict   | Number of<br>restaurants and<br>bars        | see V81 |
| 611            | 96  | Area                                                            | Subdistrict   | sq. km.                                     | BM 2    |
| 612            | 97  | Population                                                      | Subdistrict   | % of total<br>population of<br>district     | BM 2    |
| 613            | 98  | Area                                                            | Subdistrict   | % of total area<br>of district              | BM 2    |
| 614            | 99  | Total number of hotels                                          | District      | Number of<br>hotels                         | BM 9    |
| 615            | 100 | Total number of hotels:<br>First class                          | District      | Number of<br>first class hotels             | BM 9    |
| 616            | 101 | Total number of hotels:<br>Second class                         | District      | Number of<br>second class hotels            | BM 9    |
| 617            | 102 | Total number of service places                                  | District      | Number of<br>service places                 | BM 11   |

<sup>1)</sup> Wat: commonly translated as "Temple"

| Numbering |     | Denotation or<br>construction of variable | Scope<br>unit | Unit of<br>measurement           | Source       |
|-----------|-----|-------------------------------------------|---------------|----------------------------------|--------------|
| I         | II  |                                           |               |                                  |              |
| 618       | 103 | Total number of "leading"<br>hotels       | District      | Number of "leading"<br>hotels    | TOT 1        |
| 619       | 104 | Total number of hotels:<br>Luxury class   | District      | Number of luxury<br>class hotels | BM 9         |
| 620       | 105 | Area                                      | District      | sq. km.                          | BM 2         |
| 517       | 106 | V601 : V611                               | Subdistrict   | Ratio                            | TOT 1/BM 2   |
| 518       | 107 | V602 : V611                               | Subdistrict   | Ratio                            | BM 11/BM 2   |
| 519       | 108 | V603 : V611                               | Subdistrict   | Ratio                            | TOT map/BM 2 |
| 520       | 109 | V604 : V611                               | Subdistrict   | Ratio                            | TOT map/BM 2 |
| 521       | 110 | V608 : V611                               | Subdistrict   | Ratio                            | TOT map/BM 2 |
| 522       | 111 | V609 : V611                               | Subdistrict   | Ratio                            | TOT map/BM 2 |
| 523       | 112 | V610 : V611                               | Subdistrict   | Ratio                            | see V81/BM 2 |

Sphere III: Extents of Agreement (Definition: see chap. 2.7., p. 83/12)

Numbering: I = Simple variables: numbers 301 ff.  
II = Running numbers 113 to 125

| Numbering |     | Denotation of variable | Scope unit | Unit of measurement | Source                                        |
|-----------|-----|------------------------|------------|---------------------|-----------------------------------------------|
| I         | II  |                        |            |                     |                                               |
| 301       | 113 | Extent of agreement 1  | photograph | % of selections     | Photograph-surrogate test<br>(see chap. 3.3.) |
| 302       | 114 | Extent of agreement 2  | photograph | % of selections     |                                               |
| 303       | 115 | Extent of agreement 3  | photograph | % of selections     |                                               |
| 304       | 116 | Extent of agreement 4  | photograph | % of selections     |                                               |
| 305       | 117 | Extent of agreement 5  | photograph | % of selections     |                                               |
| 306       | 118 | Extent of agreement 6  | photograph | % of selections     |                                               |
| 307       | 119 | Extent of agreement 7  | photograph | % of selections     |                                               |
| 308       | 120 | Extent of agreement 8  | photograph | % of selections     |                                               |
| 309       | 121 | Extent of agreement 9  | photograph | % of selections     |                                               |
| 310       | 122 | Extent of agreement 10 | photograph | % of selections     |                                               |
| 311       | 123 | Extent of agreement 11 | photograph | % of selections     |                                               |
| 312       | 124 | Extent of agreement 12 | photograph | % of selections     |                                               |

Note: Extent of agreement = EoA

- EoA 1 : "Central areas within the townscape"
- EoA 2 : "For certain in Bangkok"
- EoA 3 : "Borderlines and distinct areas within the townscape"
- EoA 4 : "Intensively used areas within the townscape"
- EoA 5 : "Uniform areas within the townscape"
- EoA 6 : "For certain not in Bangkok"
- EoA 7 : "Perhaps in Bangkok"
- EoA 8 : "Interesting, beautiful, agreeable, valuable subjects"
- EoA 9 : "Subjects helpful to orientation"
- EoA 10 : "Typical features of Bangkok"
- EoA 11 : "Areas which are preferably visited"
- EoA 12 : "Areas which are negatively recommended, i.e. not to visit them"





## APPENDIX 8

Multiple regression analysis: (1) Computed results, per Extent of Agreement  
(2) Plotted residuals

EoA 1

| Number of cases | Number of steps | Independent variables in the equation after ... steps | Independent variables not in the equation ( $F < 0,01$ $T < 0,001$ ) | Multiple R | Simple R | R square (Coefficient of determination) | % of overall variance explained | Adjusted R square | R square change from step to step (= squared semipartial correlation coefficients) | Squared partial correlation coefficients (For proportionate increase) | B (Partial regression coefficient, unstandardized) | Standard error B | Beta weights (Standardized regression coefficients, for relative contribution) | F-test for regression coefficients | F-test for overall regression equation | DF (Degrees of freedom) | Standard error (= Standard deviation of residuals) |
|-----------------|-----------------|-------------------------------------------------------|----------------------------------------------------------------------|------------|----------|-----------------------------------------|---------------------------------|-------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------|----------------------------------------------------|------------------|--------------------------------------------------------------------------------|------------------------------------|----------------------------------------|-------------------------|----------------------------------------------------|
| 35              | 1.              | F3/V13                                                |                                                                      | 0.26018    | -0.26016 | 0.06769                                 | 13.21                           | 0.07787           | 0.06769                                                                            | 0.07260                                                               | -0.24975                                           | 0.15448          | -0.27086                                                                       | 2.614                              | 1.57301                                | 3, 31                   | 17.49356                                           |
|                 | 2.              | F2/V10                                                |                                                                      | 0.35968    | 0.23895  | 0.12938                                 |                                 |                   | 0.06167                                                                            | 0.06572                                                               | 0.35804                                            | 0.23880          | 0.25142                                                                        | 2.248                              |                                        |                         |                                                    |
|                 | 3.              | F1/V20                                                |                                                                      | 0.36348    | 0.02986  | 0.13212                                 |                                 |                   | 0.00276                                                                            | 0.00277                                                               | 0.16083                                            | 0.51230          | 0.05264                                                                        | 0.099                              |                                        |                         |                                                    |
| 35              | 1.              | F3/V7                                                 |                                                                      | 0.38248    | 0.38248  | 0.14629                                 | 19.49                           | 0.08758           | 0.14629                                                                            | 0.17136                                                               | 0.08040                                            | 0.05677          | 0.30278                                                                        | 2.005                              | 1.40425                                | 5, 29                   | 17.42001                                           |
|                 | 2.              | F5/V10                                                |                                                                      | 0.42190    | 0.23895  | 0.17800                                 |                                 |                   | 0.03171                                                                            | 0.03858                                                               | 0.30154                                            | 0.29894          | 0.21174                                                                        | 1.031                              |                                        |                         |                                                    |
|                 | 3.              | F2/V13                                                |                                                                      | 0.43440    | -0.26016 | 0.18871                                 |                                 |                   | 0.01070                                                                            | 0.01319                                                               | -0.09390                                           | 0.18578          | -0.10183                                                                       | 0.256                              |                                        |                         |                                                    |
|                 | 4.              | F1/V3                                                 |                                                                      | 0.43869    | 0.23615  | 0.19245                                 |                                 |                   | 0.00375                                                                            | 0.00464                                                               | 0.02755                                            | 0.08260          | 0.06234                                                                        | 0.111                              |                                        |                         |                                                    |
|                 | 5.              | F6/V14                                                |                                                                      | 0.44150    | 0.19629  | 0.19492                                 |                                 |                   | 0.00247                                                                            | 0.00307                                                               | -0.13005                                           | 0.43626          | -0.06469                                                                       | 0.089                              |                                        |                         |                                                    |
| F4/V19          |                 |                                                       |                                                                      |            |          |                                         |                                 |                   |                                                                                    |                                                                       |                                                    |                  |                                                                                |                                    |                                        |                         |                                                    |
| 35              | 1.              | F2/V90                                                |                                                                      | 0.28843    | 0.28843  | 0.08319                                 | 26.99                           | 0.04522           | 0.08319                                                                            | 0.09074                                                               | 3.06816                                            | 1.67716          | 0.39763                                                                        | 3.347                              | 1.02673                                | 9, 25                   | 17.86723                                           |
|                 | 2.              | F8/V112                                               |                                                                      | 0.38714    | 0.25896  | 0.13479                                 |                                 |                   | 0.05180                                                                            | 0.05964                                                               | 1.28765                                            | 1.40045          | 0.21483                                                                        | 0.845                              |                                        |                         |                                                    |
|                 | 3.              | F5/V83                                                |                                                                      | 0.41163    | 0.02594  | 0.16944                                 |                                 |                   | 0.03465                                                                            | 0.04171                                                               | -0.21023                                           | 0.24031          | -0.19736                                                                       | 0.765                              |                                        |                         |                                                    |
|                 | 4.              | F6/V53                                                |                                                                      | 0.44381    | -0.16280 | 0.19897                                 |                                 |                   | 0.02752                                                                            | 0.03427                                                               | -1.07208                                           | 0.83422          | -0.28969                                                                       | 1.652                              |                                        |                         |                                                    |
|                 | 5.              | F4/V58                                                |                                                                      | 0.48313    | 0.21313  | 0.23342                                 |                                 |                   | 0.03645                                                                            | 0.04755                                                               | 7.48438                                            | 5.34154          | 0.34231                                                                        | 1.963                              |                                        |                         |                                                    |
|                 | 6.              | F3/V51                                                |                                                                      | 0.50509    | 0.07292  | 0.25511                                 |                                 |                   | 0.02189                                                                            | 0.02912                                                               | -0.10178                                           | 0.18888          | -0.17752                                                                       | 0.290                              |                                        |                         |                                                    |
|                 | 7.              | F7/V42                                                |                                                                      | 0.51354    | 0.16629  | 0.26373                                 |                                 |                   | 0.00862                                                                            | 0.01170                                                               | 0.29524                                            | 0.44622          | 0.13388                                                                        | 0.438                              |                                        |                         |                                                    |
|                 | 8.              | F9/V47                                                |                                                                      | 0.51921    | -0.22202 | 0.26958                                 |                                 |                   | 0.00585                                                                            | 0.00800                                                               | 8.73798                                            | 19.14707         | 0.11543                                                                        | 0.208                              |                                        |                         |                                                    |
|                 | 9.              | F1/V64                                                |                                                                      | 0.51949    | -0.03719 | 0.26987                                 |                                 |                   | 0.00029                                                                            | 0.00040                                                               | -0.00006                                           | 0.00057          | -0.03314                                                                       | 0.010                              |                                        |                         |                                                    |

EoA 2

| Number of cases | Number of steps | Independent variables in the equation after ... steps | Independent variables not in the equation ( $F < 0,01$ $T < 0,001$ ) | Multiple R | Simple R | R square (Coefficient of determination) | % of overall variance explained | Adjusted R square | R square change from step to step (= squared semipartial correlation coefficients) | Squared partial correlation coefficients (For proportionate increase) | B (Partial regression coefficient, unstandardized) | Standard error B | Beta weights (Standardized regression coefficients, for relative contribution) | F-test for regression coefficients | F-test for overall regression equation | DF (Degrees of freedom) | Standard error (= Standard deviation of residuals) |
|-----------------|-----------------|-------------------------------------------------------|----------------------------------------------------------------------|------------|----------|-----------------------------------------|---------------------------------|-------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------|----------------------------------------------------|------------------|--------------------------------------------------------------------------------|------------------------------------|----------------------------------------|-------------------------|----------------------------------------------------|
| 35              | 1.              | F3/V13                                                |                                                                      | 0.32770    | -0.32770 | 0.10738                                 | 17.11                           | 0.11932           | 0.10738                                                                            | 0.12030                                                               | -0.29711                                           | 0.14355          | -0.33687                                                                       | 4.284                              | 2.13340                                | 3, 31                   | 16.25574                                           |
|                 | 2.              | F2/V10                                                |                                                                      | 0.40729    | 0.23009  | 0.16588                                 |                                 |                   | 0.05850                                                                            | 0.06213                                                               | 0.33317                                            | 0.22190          | 0.24605                                                                        | 2.254                              |                                        |                         |                                                    |
|                 | 3.              | F1/V20                                                |                                                                      | 0.41368    | 0.04779  | 0.17113                                 |                                 |                   | 0.00524                                                                            | 0.00527                                                               | 0.21084                                            | 0.47805          | 0.07257                                                                        | 0.196                              |                                        |                         |                                                    |
| 35              | 1.              | F3/V7                                                 |                                                                      | 0.35552    | 0.35552  | 0.12639                                 | 20.48                           | 0.06766           | 0.12639                                                                            | 0.14468                                                               | 0.05365                                            | 0.05797          | 0.21248                                                                        | 0.857                              | 1.20163                                | 6, 28                   | 16.75374                                           |
|                 | 2.              | F5/V10                                                |                                                                      | 0.39565    | 0.23009  | 0.15654                                 |                                 |                   | 0.03014                                                                            | 0.03573                                                               | 0.30523                                            | 0.28606          | 0.22541                                                                        | 1.138                              |                                        |                         |                                                    |
|                 | 3.              | F2/V13                                                |                                                                      | 0.44234    | -0.32770 | 0.19567                                 |                                 |                   | 0.03913                                                                            | 0.04865                                                               | -0.19028                                           | 0.18412          | -0.21702                                                                       | 1.068                              |                                        |                         |                                                    |
|                 | 4.              | F6/V14                                                |                                                                      | 0.44771    | 0.17005  | 0.20044                                 |                                 |                   | 0.00478                                                                            | 0.00598                                                               | -0.13881                                           | 0.43485          | -0.07262                                                                       | 0.102                              |                                        |                         |                                                    |
|                 | 5.              | F1/V3                                                 |                                                                      | 0.45190    | 0.25510  | 0.20421                                 |                                 |                   | 0.00377                                                                            | 0.00474                                                               | 0.02833                                            | 0.07955          | 0.06741                                                                        | 0.127                              |                                        |                         |                                                    |
|                 | 6.              | F4/V19                                                |                                                                      | 0.45251    | 0.05465  | 0.20477                                 |                                 |                   | 0.00056                                                                            | 0.00070                                                               | 0.14307                                            | 1.02208          | 0.02557                                                                        | 0.020                              |                                        |                         |                                                    |
| 35              | 1.              | F2/V90                                                |                                                                      | 0.22292    | 0.22292  | 0.04969                                 | 10.01                           | -0.17680          | 0.04969                                                                            | 0.05229                                                               | 2.08427                                            | 1.77048          | 0.28408                                                                        | 1.386                              | 0.30896                                | 9, 25                   | 18.86134                                           |
|                 | 2.              | F7/V42                                                |                                                                      | 0.25505    | 0.11802  | 0.06505                                 |                                 |                   | 0.01536                                                                            | 0.01641                                                               | 0.30087                                            | 0.47105          | 0.14348                                                                        | 0.408                              |                                        |                         |                                                    |
|                 | 3.              | F5/V83                                                |                                                                      | 0.26762    | 0.05230  | 0.07162                                 |                                 |                   | 0.00657                                                                            | 0.00711                                                               | -0.10954                                           | 0.25368          | -0.10822                                                                       | 0.187                              |                                        |                         |                                                    |
|                 | 4.              | F4/V58                                                |                                                                      | 0.28150    | 0.11928  | 0.07924                                 |                                 |                   | 0.00762                                                                            | 0.00828                                                               | 2.62210                                            | 5.83874          | 0.12612                                                                        | 0.216                              |                                        |                         |                                                    |
|                 | 5.              | F6/V53                                                |                                                                      | 0.29850    | -0.04430 | 0.08910                                 |                                 |                   | 0.00986                                                                            | 0.01082                                                               | -0.58837                                           | 0.88063          | -0.16720                                                                       | 0.446                              |                                        |                         |                                                    |
|                 | 6.              | F1/V64                                                |                                                                      | 0.30399    | 0.04781  | 0.09241                                 |                                 |                   | 0.00331                                                                            | 0.00385                                                               | 0.00028                                            | 0.00061          | 0.16686                                                                        | 0.207                              |                                        |                         |                                                    |
|                 | 7.              | F3/V51                                                |                                                                      | 0.31283    | 0.04581  | 0.09786                                 |                                 |                   | 0.00545                                                                            | 0.00604                                                               | -0.08732                                           | 0.19939          | -0.16019                                                                       | 0.192                              |                                        |                         |                                                    |
|                 | 8.              | F8/V112                                               |                                                                      | 0.31557    | 0.10515  | 0.09959                                 |                                 |                   | 0.00172                                                                            | 0.00191                                                               | 0.34072                                            | 1.47837          | 0.05979                                                                        | 0.053                              |                                        |                         |                                                    |
|                 | 9.              | F9/V47                                                |                                                                      | 0.31637    | -0.11654 | 0.10009                                 |                                 |                   | 0.00051                                                                            | 0.00057                                                               | 2.39919                                            | 20.21239         | 0.03333                                                                        | 0.014                              |                                        |                         |                                                    |

EoA 1

EoA 2

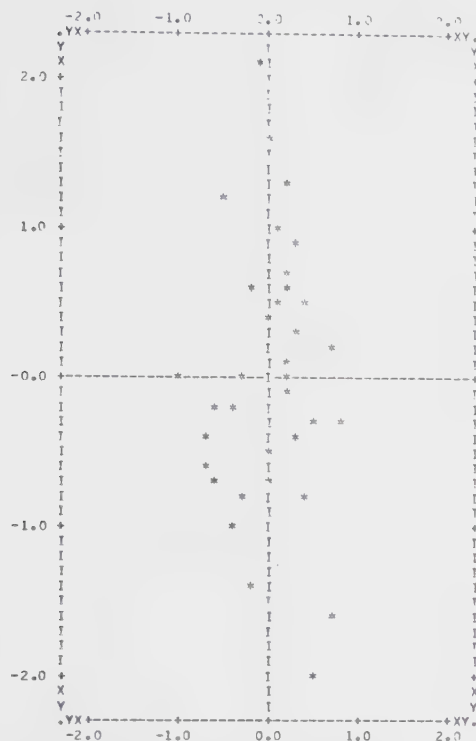
\*\*\*\*\* PLOT: STANDARDIZED RESIDUAL (DOWN) -- PREDICTED STANDARDIZED DEPENDENT VARIABLE (ACROSS) \*\*\*\*\*

DEPENDENT VARIABLE: ANSWA

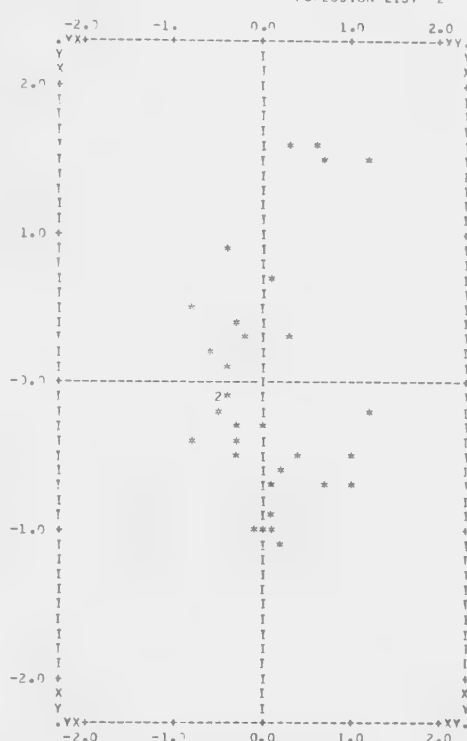
VARIABLE LIST 1  
REGRESSION LIST 1

DEPENDENT VARIABLE: ANSWB

VARIABLE LIST 1  
REGRESSION LIST 2



ROWS,COLUMNS Y: VALUES OUTSIDE (-3.0,3.0)



ROWS,COLUMNS X: VALUES IN (-3.0,-2.05) OR (2.05,3.0)

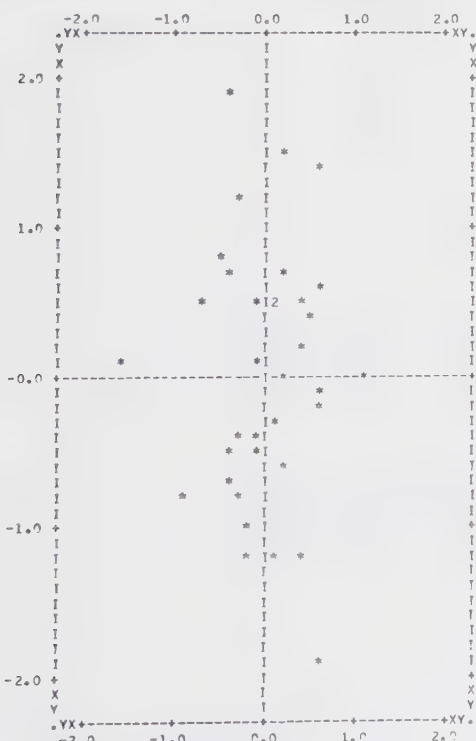
\*\*\*\*\* PLOT: STANDARDIZED RESIDUAL (DOWN) -- PREDICTED STANDARDIZED DEPENDENT VARIABLE (ACROSS) \*\*\*\*\*

DEPENDENT VARIABLE: ANSWA

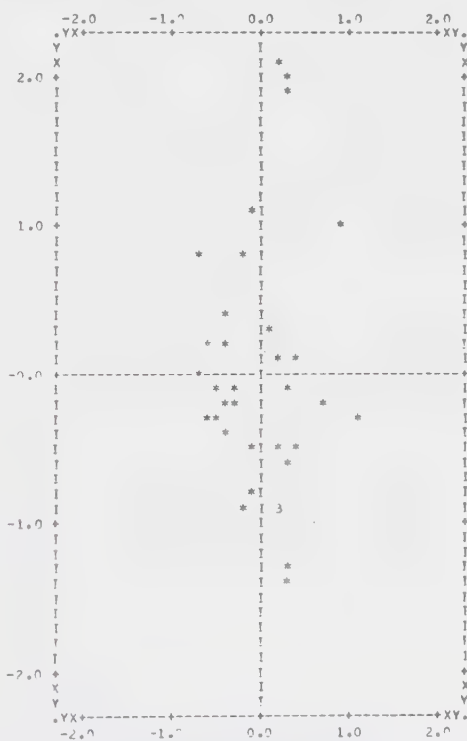
VARIABLE LIST 1  
REGRESSION LIST 1

DEPENDENT VARIABLE: ANSWB

VARIABLE LIST 1  
REGRESSION LIST 2



ROWS,COLUMNS Y: VALUES OUTSIDE (-3.0,3.0)



ROWS,COLUMNS X: VALUES IN (-3.0,-2.05) OR (2.05,3.0)

The examination of residuals, Plot against  $\hat{Y}_i$

They indicate no abnormality, and the least squares analysis does not appear to be invalidated.  
(cf. DRAPER and SMITH, 1966, p. 90).

| Number of cases | Number of steps | Independent variables in the equation after ... steps | Independent variables not in the equation ( $P < 0.01$ $T < 0.001$ ) | Multiple R | Simple R | R square<br>(Coefficient of determination) | % of overall variance explained | Adjusted R square | R square change from step to step<br>(= squared semipartial correlation coefficients) | Squared partial correlation coefficients<br>(For proportionate increase) | B (Partial regression coefficient, unstandardised) | Standard error B | Beta weights<br>(Standardised regression coefficients, for relative contribution) | F-test for regression coefficients | F-test for overall regression equation | DF (Degrees of freedom) | Standard error<br>(= Standard deviation of residuals) |
|-----------------|-----------------|-------------------------------------------------------|----------------------------------------------------------------------|------------|----------|--------------------------------------------|---------------------------------|-------------------|---------------------------------------------------------------------------------------|--------------------------------------------------------------------------|----------------------------------------------------|------------------|-----------------------------------------------------------------------------------|------------------------------------|----------------------------------------|-------------------------|-------------------------------------------------------|
| 35              | 1.              | F3/V13                                                |                                                                      | 0.55716    | 0.55716  | 0.31043                                    | 44.04                           | 0.40545           | 0.31043                                                                               | 0.45018                                                                  | 0.48350                                            | 0.11334          | 0.57437                                                                           | 18.230*                            | 8.13297*                               | 3, 31                   | 12.82387                                              |
|                 | 2.              | F2/V10                                                |                                                                      | 0.64394    | -0.30288 | 0.41466                                    |                                 |                   | 0.10423                                                                               | 0.11049                                                                  | -0.43161                                           | 0.17505          | -0.33198                                                                          | 6.079*                             |                                        |                         |                                                       |
|                 | 3.              | F1/V20                                                |                                                                      | 0.66364    | -0.12345 | 0.44042                                    |                                 |                   | 0.02576                                                                               | 0.02644                                                                  | -0.44863                                           | 0.37555          | -0.16084                                                                          | 1.427                              |                                        |                         |                                                       |
| 35              | 1.              | F3/V7                                                 |                                                                      | 0.72759    | -0.72759 | 0.52938                                    | 72.35                           | 0.68682           | 0.52938                                                                               | 1.12486                                                                  | -0.13604                                           | 0.03038          | -0.56118                                                                          | 20.058*                            | 16.17539*                              | 5, 29                   | 9.32030                                               |
|                 | 2.              | F1/V3                                                 |                                                                      | 0.81671    | -0.58067 | 0.66702                                    |                                 |                   | 0.13763                                                                               | 0.41333                                                                  | -0.12224                                           | 0.04419          | -0.30297                                                                          | 7.652*                             |                                        |                         |                                                       |
|                 | 3.              | F2/V13                                                |                                                                      | 0.83938    | 0.55716  | 0.68787                                    |                                 |                   | 0.02085                                                                               | 0.06680                                                                  | 0.18985                                            | 0.09839          | 0.20177                                                                           | 2.921                              |                                        |                         |                                                       |
|                 | 4.              | F5/V10                                                |                                                                      | 0.84061    | -0.30288 | 0.70662                                    |                                 |                   | 0.01875                                                                               | 0.06391                                                                  | -0.30104                                           | 0.15887          | -0.23155                                                                          | 3.590                              |                                        |                         |                                                       |
|                 | 5.              | F6/V14                                                | F4/V19                                                               | 0.85058    | -0.25600 | 0.72349                                    |                                 |                   | 0.01687                                                                               | 0.06101                                                                  | 0.31043                                            | 0.23341          | 0.16914                                                                           | 1.768                              |                                        |                         |                                                       |
| 35              | 1.              | F2/V30                                                |                                                                      | 0.35109    | -0.35109 | 0.12326                                    | 25.29                           | 0.05917           | 0.12326                                                                               | 0.14069                                                                  | -1.81036                                           | 1.31858          | -0.25699                                                                          | 1.891                              | 1.0999                                 | 8, 28                   | 16.18009                                              |
|                 | 2.              | F7/V42                                                |                                                                      | 0.39929    | 0.19938  | 0.15943                                    |                                 |                   | 0.03617                                                                               | 0.04303                                                                  | 0.55995                                            | 0.39436          | 0.37812                                                                           | 2.016                              |                                        |                         |                                                       |
|                 | 3.              | F8/V112                                               |                                                                      | 0.42034    | -0.13618 | 0.17669                                    |                                 |                   | 0.01726                                                                               | 0.02096                                                                  | -1.82466                                           | 1.26801          | -0.29690                                                                          | 1.642                              |                                        |                         |                                                       |
|                 | 4.              | F3/V51                                                |                                                                      | 0.45320    | 0.01115  | 0.20639                                    |                                 |                   | 0.02870                                                                               | 0.03612                                                                  | 0.19790                                            | 0.17101          | 0.37811                                                                           | 1.339                              |                                        |                         |                                                       |
|                 | 5.              | F1/V44                                                |                                                                      | 0.47200    | -0.11075 | 0.22278                                    |                                 |                   | 0.01740                                                                               | 0.02339                                                                  | -0.00044                                           | 0.00052          | -0.28049                                                                          | 0.738                              |                                        |                         |                                                       |
|                 | 6.              | F9/V47                                                |                                                                      | 0.48885    | 0.12774  | 0.23898                                    |                                 |                   | 0.01616                                                                               | 0.02127                                                                  | 18.50034                                           | 16.70682         | 0.33975                                                                           | 0.975                              |                                        |                         |                                                       |
|                 | 7.              | F4/V58                                                |                                                                      | 0.49461    | -0.09786 | 0.24484                                    |                                 |                   | 0.00587                                                                               | 0.00751                                                                  | 2.93925                                            | 4.83643          | 0.14725                                                                           | 0.369                              |                                        |                         |                                                       |
|                 | 8.              | F6/V53                                                | F5/V83                                                               | 0.50286    | -1.2924  | 0.25287                                    |                                 |                   | 0.00623                                                                               | 0.01102                                                                  | -0.40176                                           | 0.75081          | -0.11691                                                                          | 0.286                              |                                        |                         |                                                       |

## EoA 4

| Number of cases | Number of steps | Independent variables in the equation after ... steps | Independent variables not in the equation (F<0.01 T<0.001) | Multiple R | Simple R | R square<br>(Coefficient of determination) | % of overall variance explained | Adjusted R square | R square change from step to step<br>(= squared semipartial correlation coefficients) | Squared partial correlation coefficients<br>(For proportionate increase) | B (Partial regression coefficient, unstandardised) | Standard error B | Beta weights<br>(Standardized regression coefficients, for relative contribution) | F-test for regression coefficients | F-test for overall regression equation | DF (Degree of freedom) | Standard error<br>(= Standard deviation of residuals) |
|-----------------|-----------------|-------------------------------------------------------|------------------------------------------------------------|------------|----------|--------------------------------------------|---------------------------------|-------------------|---------------------------------------------------------------------------------------|--------------------------------------------------------------------------|----------------------------------------------------|------------------|-----------------------------------------------------------------------------------|------------------------------------|----------------------------------------|------------------------|-------------------------------------------------------|
| 35              | 1.              | F2/V10                                                |                                                            | 0.39247    | 0.39247  | 0.15403                                    | 38.16                           | 0.3+291           | 0.15403                                                                               | 0.18208                                                                  | 0.56143                                            | 0.18786          | 0.42303                                                                           | 8.931 *                            | 6.37549 *                              | 3, 31                  | 13.76201                                              |
|                 | 2.              | F3/V13                                                |                                                            | 0.52301    | -0.33156 | 0.27354                                    |                                 |                   | 0.11951                                                                               | 0.13573                                                                  | -0.30736                                           | 0.12153          | -0.35767                                                                          | 6.396 *                            |                                        |                        |                                                       |
|                 | 3.              | F1/V20                                                |                                                            | 0.61771    | 0.29435  | 0.38156                                    |                                 |                   | 0.10803                                                                               | 0.12113                                                                  | 0.93784                                            | 0.40302          | 0.32937                                                                           | 5.415 *                            |                                        |                        |                                                       |
| 35              | 1.              | F3/V7                                                 |                                                            | 0.71395    | 0.71395  | 0.50972                                    | 64.16                           | 0.59385           | 0.50972                                                                               | 1.03965                                                                  | 0.14394                                            | 0.03404          | 0.58187                                                                           | 17.879 *                           | 10.38439 *                             | 5, 29                  | 10.83134                                              |
|                 | 2.              | F5/V10                                                |                                                            | 0.76619    | 0.39247  | 0.58702                                    |                                 |                   | 0.07733                                                                               | 0.18725                                                                  | 0.37199                                            | 0.15713          | 0.28029                                                                           | 5.605 *                            |                                        |                        |                                                       |
|                 | 3.              | F1/V3                                                 |                                                            | 0.79580    | 0.32417  | 0.63330                                    |                                 |                   | 0.04625                                                                               | 0.12613                                                                  | 1.23229                                            | 0.63757          | 0.22468                                                                           | 3.736                              |                                        |                        |                                                       |
|                 | 4.              | F4/V19                                                |                                                            | 0.80037    | 0.36547  | 0.64060                                    |                                 |                   | 0.00730                                                                               | 0.02031                                                                  | 0.03412                                            | 0.05123          | 0.08284                                                                           | 0.444                              |                                        |                        |                                                       |
|                 | 5.              | F2/V13                                                | F6/V14                                                     | 0.80102    | -0.33156 | 0.64163                                    |                                 |                   | 0.00103                                                                               | 0.00287                                                                  | -0.03431                                           | 0.11871          | -0.03993                                                                          | 0.084                              |                                        |                        |                                                       |
| 35              | 1.              | F2/V90                                                |                                                            | 0.36745    | 0.36745  | 0.13502                                    | 32.35                           | 0.17859           | 0.13502                                                                               | 0.15610                                                                  | 1.94582                                            | 1.18873          | 0.27056                                                                           | 2.679                              | 1.84482                                | 7, 27                  | 15.42248                                              |
|                 | 2.              | F4/V58                                                |                                                            | 0.41122    | 0.27060  | 0.16910                                    |                                 |                   | 0.03408                                                                               | 0.04102                                                                  | 5.12961                                            | 4.09353          | 0.25175                                                                           | 1.570                              |                                        |                        |                                                       |
|                 | 3.              | F3/V51                                                |                                                            | 0.46941    | -0.08743 | 0.22035                                    |                                 |                   | 0.05125                                                                               | 0.06574                                                                  | -0.27034                                           | 1.02271          | -0.50598                                                                          | 2.761                              |                                        |                        |                                                       |
|                 | 4.              | F6/V112                                               |                                                            | 0.51007    | 0.13257  | 0.26017                                    |                                 |                   | 0.03982                                                                               | 0.05382                                                                  | 2.04691                                            | 1.16474          | 0.36044                                                                           | 2.903                              |                                        |                        |                                                       |
|                 | 5.              | F7/V42                                                |                                                            | 0.55867    | -0.17639 | 0.31212                                    |                                 |                   | 0.05194                                                                               | 0.07551                                                                  | -0.46299                                           | 0.35536          | -0.22528                                                                          | 1.698                              |                                        |                        |                                                       |
|                 | 6.              | F6/V53                                                |                                                            | 0.56805    | 0.20937  | 0.32268                                    |                                 |                   | 0.01057                                                                               | 0.01570                                                                  | 0.33820                                            | 0.68091          | 0.09806                                                                           | 0.247                              |                                        |                        |                                                       |
|                 | 7.              | F1/V64                                                | F9/V47<br>F5/V83                                           | 0.56881    | 0.05393  | 0.32354                                    |                                 |                   | 0.00086                                                                               | 0.00127                                                                  | 0.00009                                            | 0.00047          | 0.05366                                                                           | 0.034                              |                                        |                        |                                                       |



EoA 3

EoA 4

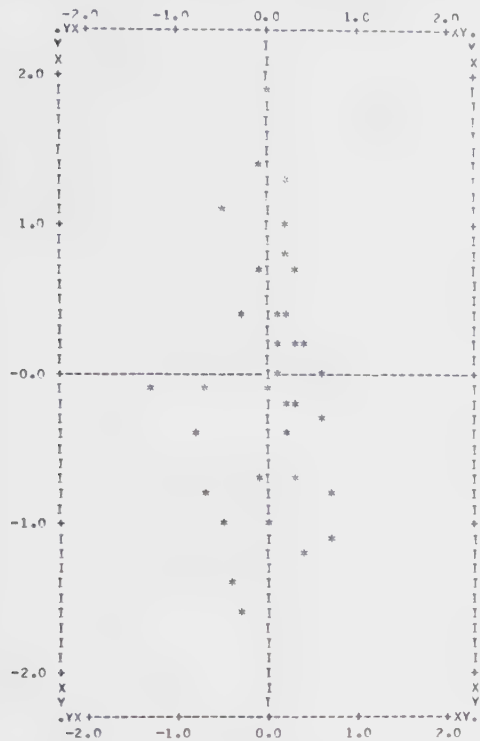
\*\*\*\*\* PLOT: STANDARDIZED RESIDUAL (DOWN) -- PREDICTED STANDARDIZED DEPENDENT VARIABLE (ACROSS) \*\*\*\*\*

DEPENDENT VARIABLE: ANSWC

VARIABLE LIST 1  
REGRESSION LIST 3

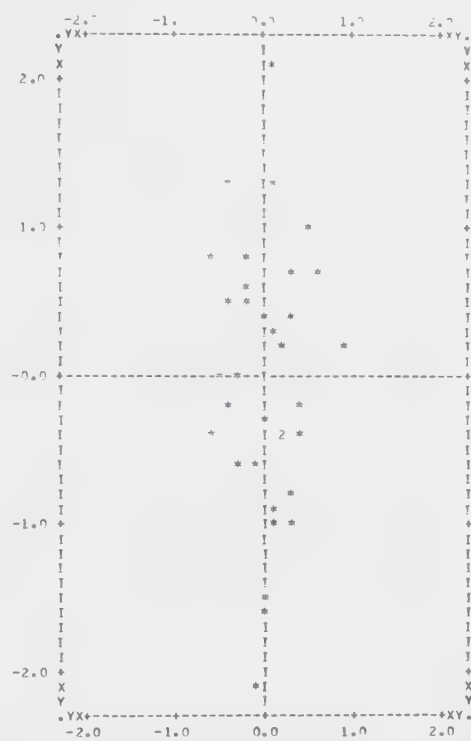
DEPENDENT VARIABLE: ANSWD

VARIABLE LIST 1  
REGRESSION LIST 4



ROWS,COLUMNS Y: VALUES OUTSIDE (-3.0,3.0)

ROWS,COLUMNS X: VALUES IN (-3.0,-2.05) OR (2.05,3.0)



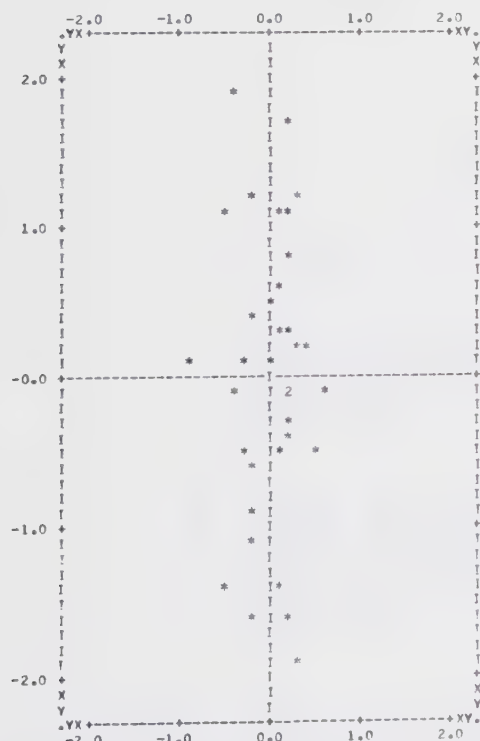
\*\*\*\*\* PLOT: STANDARDIZED RESIDUAL (DOWN) -- PREDICTED STANDARDIZED DEPENDENT VARIABLE (ACROSS) \*\*\*\*\*

DEPENDENT VARIABLE: ANSWC

VARIABLE LIST 1  
REGRESSION LIST 3

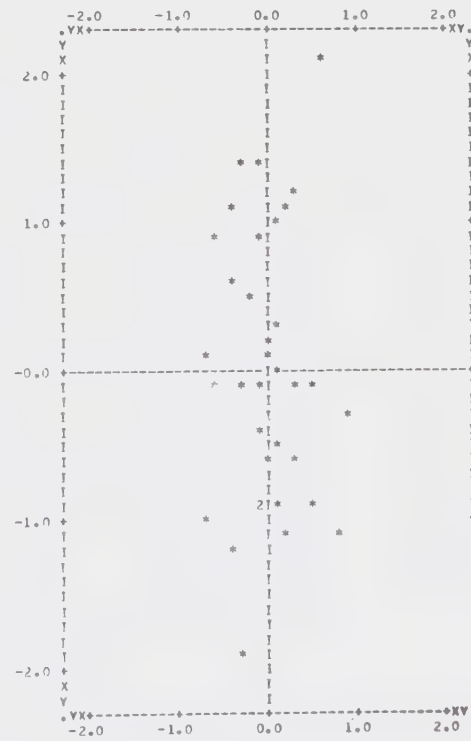
DEPENDENT VARIABLE: ANSWD

VARIABLE LIST 1  
REGRESSION LIST 4



ROWS,COLUMNS Y: VALUES OUTSIDE (-3.0,3.0)

ROWS,COLUMNS X: VALUES IN (-3.0,-2.05) OR (2.05,3.0)



The examination of residuals: Plot against  $Y_i$

They indicate no abnormality, and the least squares analysis does not appear to be invalidated.  
(cf. DRAPER and SMITH, 1966. p. 90).

| Number of cases | Number of steps | Independent variables in the equation after ... steps | Independent variables not in the equation ( $P < 0,01$ $T < 0,001$ ) | Multiple R | Simple R | R square (Coefficient of determination) | % of overall variance explained | Adjusted R square | R square change from step to step (= squared semipartial correlation coefficients) | Squared partial correlation coefficients (For proportionate increase) | B (Partial regression coefficient, unstandardized) | Standard error B | Beta weights (Standardized regression coefficients, for relative contribution) | F-test for regression coefficients | F-test for overall regression equation | DF (Degrees of freedom) | Standard error (= Standard deviation of residuals) |
|-----------------|-----------------|-------------------------------------------------------|----------------------------------------------------------------------|------------|----------|-----------------------------------------|---------------------------------|-------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------|----------------------------------------------------|------------------|--------------------------------------------------------------------------------|------------------------------------|----------------------------------------|-------------------------|----------------------------------------------------|
| 35              | 1.              | F2/V10                                                |                                                                      | 0.24909    | -0.24909 | 0.06205                                 | 6.43                            | 0.03596           | 0.06205                                                                            | 0.06615                                                               | -0.17952                                           | 0.12416          | -0.24740                                                                       | 2.091                              | 1.09978                                | 2, 32                   | 9.10935                                            |
|                 | 2.              | F3/V13                                                | F1/V20                                                               | 0.25360    | -0.05643 | 0.06432                                 |                                 |                   | 0.00227                                                                            | 0.00228                                                               | -0.02239                                           | 0.08039          | -0.04765                                                                       | 0.078                              |                                        |                         |                                                    |
| 35              | 1.              | F5/V10                                                |                                                                      | 0.24909    | -0.24909 | 0.06205                                 | 9.18                            | -0.02926          | 0.06205                                                                            | 0.06616                                                               | -0.24639                                           | 0.15500          | -0.33956                                                                       | 2.527                              | 0.58648                                | 5, 29                   | 9.42718                                            |
|                 | 2.              | F6/V14                                                |                                                                      | 0.28414    | -0.02179 | 0.08073                                 |                                 |                   | 0.01869                                                                            | 0.02033                                                               | 0.21959                                            | 0.24372          | 0.21437                                                                        | 0.812                              |                                        |                         |                                                    |
|                 | 3.              | F3/V7                                                 |                                                                      | 0.29300    | -0.05450 | 0.08585                                 |                                 |                   | 0.00511                                                                            | 0.00559                                                               | -0.01870                                           | 0.03235          | -0.13822                                                                       | 0.334                              |                                        |                         |                                                    |
|                 | 4.              | F2/V13                                                |                                                                      | 0.30124    | -0.05643 | 0.09074                                 |                                 |                   | 0.00490                                                                            | 0.00539                                                               | 0.00422                                            | 0.10022          | -0.09136                                                                       | 0.183                              |                                        |                         |                                                    |
|                 | 5.              | F4/V19                                                | F1/V3                                                                | 0.30304    | -0.02149 | 0.09183                                 |                                 |                   | 0.00109                                                                            | 0.00120                                                               | 0.10707                                            | 0.57428          | 0.03571                                                                        | 0.035                              |                                        |                         |                                                    |
| 35              | 1.              | F8/V112                                               |                                                                      | 0.24681    | -0.24681 | 0.06190                                 | 12.54                           | -0.06203          | 0.06190                                                                            | 0.06598                                                               | -0.67048                                           | 0.74513          | -0.21954                                                                       | 0.810                              | 0.55297                                | 7, 27                   | 9.58790                                            |
|                 | 2.              | F9/V47                                                |                                                                      | 0.30645    | 0.24295  | 0.09391                                 |                                 |                   | 0.03200                                                                            | 0.03532                                                               | 7.73751                                            | 9.65978          | 0.20060                                                                        | 0.642                              |                                        |                         |                                                    |
|                 | 3.              | F5/V83                                                |                                                                      | 0.32377    | 0.03033  | 0.10483                                 |                                 |                   | 0.01092                                                                            | 0.01220                                                               | 0.06640                                            | 0.11105          | 0.12239                                                                        | 0.358                              |                                        |                         |                                                    |
|                 | 4.              | F7/V42                                                |                                                                      | 0.34006    | -0.03686 | 0.11564                                 |                                 |                   | 0.01081                                                                            | 0.01222                                                               | 0.11184                                            | 0.23667          | 0.09953                                                                        | 0.223                              |                                        |                         |                                                    |
|                 | 5.              | F6/V53                                                |                                                                      | 0.34482    | 0.16753  | 0.11890                                 |                                 |                   | 0.00326                                                                            | 0.00370                                                               | 0.19721                                            | 0.42366          | 0.10458                                                                        | 0.217                              |                                        |                         |                                                    |
|                 | 6.              | F4/V58                                                |                                                                      | 0.34959    | -0.12441 | 0.12221                                 |                                 |                   | 0.00331                                                                            | 0.00377                                                               | -1.15823                                           | 2.77193          | -0.10397                                                                       | 0.175                              |                                        |                         |                                                    |
|                 | 7.              | F3/V51                                                | F1/V84<br>F2/V90                                                     | 0.35410    | -0.10663 | 0.12539                                 |                                 |                   | 0.00817                                                                            | 0.00862                                                               | 0.02342                                            | 0.07482          | 0.08016                                                                        | 0.098                              |                                        |                         |                                                    |

## EoA 6

| Number of cases | Number of steps | Independent variables in the equation after ... steps | Independent variables not in the equation ( $p < 0,01$ $F < 0,001$ ) | Multiple R | Simple R | R square (Coefficient of determination) | % of overall variance explained | Adjusted R square | R square change from step to step (= squared semipartial correlation coefficients) | Squared partial correlation coefficients (For proportionate increase) | B (Partial regression coefficient, unstandardized) | Standard error B | Beta weights (Standardized regression coefficients, for relative contribution) | F-test for regression coefficients | F-test for overall regression equation | DF (Degrees of freedom) | Standard error (= Standard deviation of residuals) |
|-----------------|-----------------|-------------------------------------------------------|----------------------------------------------------------------------|------------|----------|-----------------------------------------|---------------------------------|-------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------|----------------------------------------------------|------------------|--------------------------------------------------------------------------------|------------------------------------|----------------------------------------|-------------------------|----------------------------------------------------|
| 35              | 1.              | F3/V13                                                |                                                                      | 0.17801    | 0.17801  | 0.03189                                 | 7.88                            | 0.02065           | 0.03189                                                                            | 0.03273                                                               | -0.12663                                           | 0.11600          | 0.18847                                                                        | 1.192                              | 0.87729                                | 3, 31                   | 13.13630                                           |
|                 | 2.              | F1/V20                                                |                                                                      | 0.25515    | -0.17668 | 0.06510                                 |                                 |                   | 0.03341                                                                            | 0.03456                                                               | -0.42138                                           | 0.38470          | -0.18928                                                                       | 1.200                              |                                        |                         |                                                    |
|                 | 3.              | F2/V10                                                |                                                                      | 0.27947    | -0.09799 | 0.07826                                 |                                 |                   | 0.01315                                                                            | 0.01333                                                               | -0.11927                                           | 0.17932          | -0.11494                                                                       | 0.442                              |                                        |                         |                                                    |
| 35              | 1.              | F3/V7                                                 |                                                                      | 0.39314    | -0.39314 | 0.15456                                 | 21.96                           | 0.06510           | 0.15456                                                                            | 0.18282                                                               | -0.08043                                           | 0.04400          | -0.41572                                                                       | 3.341                              | 1.31351                                | 6, 28                   | 12.71792                                           |
|                 | 2.              | F1/V3                                                 |                                                                      | 0.43436    | -0.29877 | 0.18867                                 |                                 |                   | 0.03411                                                                            | 0.04204                                                               | -0.06229                                           | 0.06039          | -0.19343                                                                       | 1.064                              |                                        |                         |                                                    |
|                 | 3.              | F6/V14                                                |                                                                      | 0.45388    | -0.04422 | 0.20801                                 |                                 |                   | 0.01734                                                                            | 0.02184                                                               | 0.26197                                            | 0.33010          | -0.17883                                                                       | 0.630                              |                                        |                         |                                                    |
|                 | 4.              | F2/V13                                                |                                                                      | 0.46091    | 0.17801  | 0.21243                                 |                                 |                   | 0.00643                                                                            | 0.00816                                                               | -0.04468                                           | 0.13977          | -0.06650                                                                       | 0.102                              |                                        |                         |                                                    |
|                 | 5.              | F5/V10                                                |                                                                      | 0.46531    | -0.09799 | 0.21651                                 |                                 |                   | 0.00408                                                                            | 0.00521                                                               | -0.07871                                           | 0.21715          | -0.07585                                                                       | 0.131                              |                                        |                         |                                                    |
|                 | 6.              | F4/V19                                                |                                                                      | 0.46866    | -0.17685 | 0.21964                                 |                                 |                   | 0.00313                                                                            | 0.00401                                                               | -0.26015                                           | 0.77587          | -0.06067                                                                       | 0.112                              |                                        |                         |                                                    |
| 35              | 1.              | F2/V90                                                |                                                                      | 0.11666    | -0.11666 | 0.01361                                 | 8.02                            | -0.15826          | 0.01361                                                                            | 0.01380                                                               | -1.48186                                           | 1.34476          | -0.26356                                                                       | 1.214                              | 0.28340                                | 8, 26                   | 14.32871                                           |
|                 | 2.              | F5/V83                                                |                                                                      | 0.18898    | 0.05060  | 0.03571                                 |                                 |                   | 0.02210                                                                            | 0.02292                                                               | 0.10299                                            | 0.19269          | 0.13275                                                                        | 0.286                              |                                        |                         |                                                    |
|                 | 3.              | F6/V53                                                |                                                                      | 0.21894    | 0.10211  | 0.04811                                 |                                 |                   | 0.01240                                                                            | 0.01303                                                               | 0.56957                                            | 0.62369          | 0.21122                                                                        | 0.834                              |                                        |                         |                                                    |
|                 | 4.              | F9/V47                                                |                                                                      | 0.25425    | -0.06482 | 0.06485                                 |                                 |                   | 0.01653                                                                            | 0.01767                                                               | -9.21923                                           | 13.73005         | -0.16714                                                                       | 0.451                              |                                        |                         |                                                    |
|                 | 5.              | F1/V64                                                |                                                                      | 0.26859    | -0.05568 | 0.07214                                 |                                 |                   | 0.00750                                                                            | 0.00808                                                               | -0.00019                                           | 0.00045          | -0.14880                                                                       | 0.179                              |                                        |                         |                                                    |
|                 | 6.              | F7/V42                                                |                                                                      | 0.27944    | -0.02296 | 0.07809                                 |                                 |                   | 0.00595                                                                            | 0.00645                                                               | -0.13682                                           | 0.35448          | -0.08514                                                                       | 0.149                              |                                        |                         |                                                    |
|                 | 7.              | F8/V112                                               |                                                                      | 0.28079    | -0.06718 | 0.07884                                 |                                 |                   | 0.00075                                                                            | 0.00081                                                               | -0.25277                                           | 1.12157          | -0.05788                                                                       | 0.051                              |                                        |                         |                                                    |
|                 | 8.              | F3/V51                                                |                                                                      | 0.28321    | -0.05346 | 0.08021                                 |                                 |                   | 0.00137                                                                            | 0.00149                                                               | 0.02957                                            | 0.15048          | 0.07079                                                                        | 0.039                              |                                        |                         |                                                    |

EoA 5

EoA 6

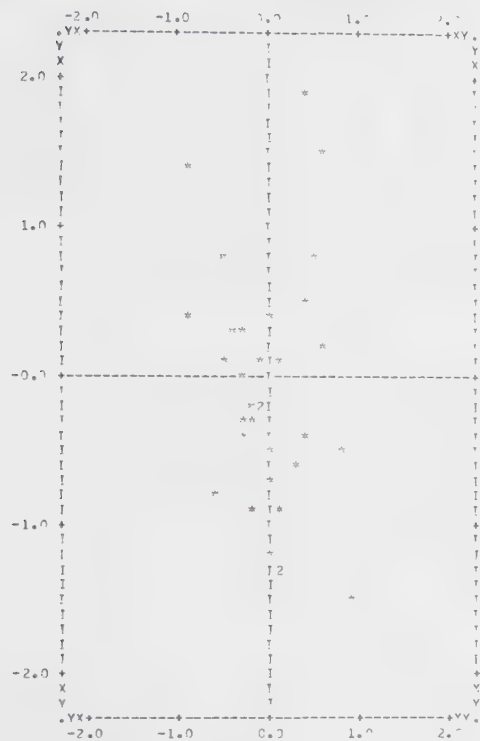
\*\*\*\*\* PLOT: STANDARDIZED RESIDUAL (DOWN) -- PREDICTED STANDARDIZED DEPENDENT VARIABLE (ACROSS) \*\*\*\*\*

DEPENDENT VARIABLE: ANSWR

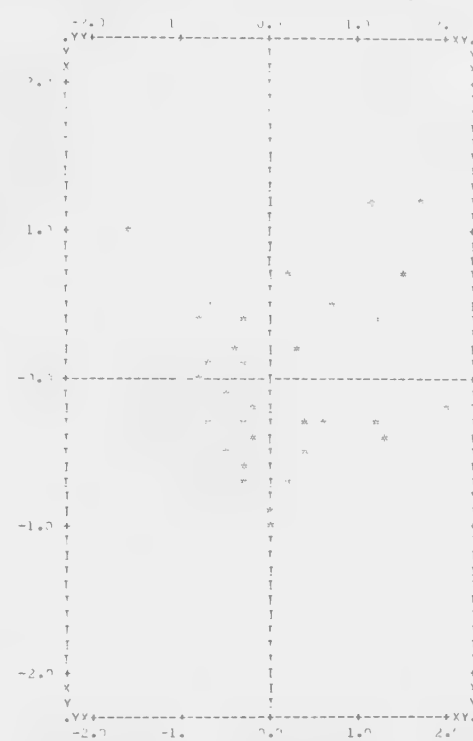
VARIABLE LIST 1  
REGRESSION LIST 5

DEPENDENT VARIABLE: ANSWR

VARIABLE LIST 1  
REGRESSION LIST 6



ROWS,COLUMNS Y: VALUES OUTSIDE (-3.0,3.0)



ROWS,COLUMNS X: VALUES IN (-3.0,2.0) OR (2.05,3.0)

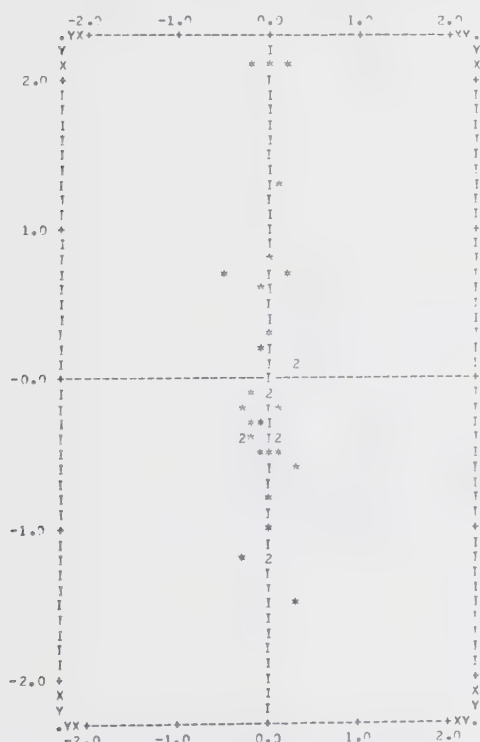
\*\*\*\*\* PLOT: STANDARDIZED RESIDUAL (DOWN) -- PREDICTED STANDARDIZED DEPENDENT VARIABLE (ACROSS) \*\*\*\*\*

DEPENDENT VARIABLE: ANSWR

VARIABLE LIST 1  
REGRESSION LIST 5

DEPENDENT VARIABLE: ANSWR

VARIABLE LIST 1  
REGRESSION LIST 6



ROWS,COLUMNS Y: VALUES OUTSIDE (-3.0,3.0)



ROWS,COLUMNS X: VALUES IN (-3.0,2.0) OR (2.05,3.0)

The examination of residuals: Plot against  $Y_1$

They indicate no abnormality, and the least squares analysis does not appear to be invalidated.  
(cf. DRAPER and SMITH, 1966, p. 90).

EoA 7

| Number of cases | Number of steps | Independent variables in the equation after ... steps | Independent variables not in the equation (F<0,01 T<0,001) | Multiple R | Simple R | R square (Coefficient of determination) | % of overall variance explained | Adjusted R square | R square change from step to step (= squared semipartial correlation coefficients) * | Squared partial correlation coefficients (For proportionate increase) | B (Partial regression coefficient, unstandardized) | Standard error B | Beta weights (Standardized regression coefficients, for relative contribution) | F-test for regression coefficients | F-test for overall regression equation | DF (Degrees of freedom) | Standard error (= Standard deviation of residuals) |
|-----------------|-----------------|-------------------------------------------------------|------------------------------------------------------------|------------|----------|-----------------------------------------|---------------------------------|-------------------|--------------------------------------------------------------------------------------|-----------------------------------------------------------------------|----------------------------------------------------|------------------|--------------------------------------------------------------------------------|------------------------------------|----------------------------------------|-------------------------|----------------------------------------------------|
| 35              | 1.              | F5/V10                                                |                                                            | 0.25310    | -0.25310 | 0.06406                                 | 13.30                           | -0.01646          | 0.06406                                                                              | 0.06844                                                               | -0.21181                                           | 0.21208          | -0.22030                                                                       | 0.997                              | 0.71600                                | 6,28                    | 12.42059                                           |
|                 | 2.              | F2/V13                                                |                                                            | 0.31832    | 0.18395  | 0.10133                                 |                                 |                   | 0.03727                                                                              | 0.04147                                                               | 0.10346                                            | 0.13650          | 0.16619                                                                        | 0.574                              |                                        |                         |                                                    |
|                 | 3.              | F4/V19                                                |                                                            | 0.34416    | 0.15208  | 0.11845                                 |                                 |                   | 0.01712                                                                              | 0.01942                                                               | 0.50542                                            | 0.75773          | 0.12720                                                                        | 0.445                              |                                        |                         |                                                    |
|                 | 4.              | F1/V3                                                 |                                                            | 0.36175    | -0.21808 | 0.13086                                 |                                 |                   | 0.01241                                                                              | 0.01428                                                               | -0.03899                                           | 0.05896          | -0.13066                                                                       | 0.437                              |                                        |                         |                                                    |
|                 | 5.              | F3/V7                                                 |                                                            | 0.36428    | -0.08560 | 0.13270                                 |                                 |                   | 0.00184                                                                              | 0.00212                                                               | 0.01134                                            | 0.04297          | 0.06327                                                                        | 0.070                              |                                        |                         |                                                    |
|                 | 6.              | F6/V14                                                |                                                            | 0.36472    | -0.17672 | 0.13302                                 |                                 |                   | 0.00032                                                                              | 0.00037                                                               | -0.03278                                           | 0.32238          | -0.02415                                                                       | 0.010                              |                                        |                         |                                                    |
| 35              | 1.              | F7/V42                                                |                                                            | 0.24543    | -0.24543 | 0.06024                                 | 14.46                           | -0.07712          | 0.06024                                                                              | 0.06410                                                               | -0.25565                                           | 0.31137          | -0.17171                                                                       | 0.674                              | 0.54958                                | 8,26                    | 12.80277                                           |
|                 | 2.              | F2/V90                                                |                                                            | 0.33711    | -0.22456 | 0.11394                                 |                                 |                   | 0.05341                                                                              | 0.06026                                                               | -1.47735                                           | 1.19467          | -0.28359                                                                       | 1.529                              |                                        |                         |                                                    |
|                 | 3.              | F5/V83                                                |                                                            | 0.35040    | -0.02596 | 0.12278                                 |                                 |                   | 0.00913                                                                              | 0.01041                                                               | 0.10448                                            | 0.17114          | 0.14535                                                                        | 0.373                              |                                        |                         |                                                    |
|                 | 4.              | F9/V47                                                |                                                            | 0.36491    | 0.22742  | 0.13316                                 |                                 |                   | 0.01038                                                                              | 0.01198                                                               | 6.89434                                            | 12.97820         | 0.13490                                                                        | 0.282                              |                                        |                         |                                                    |
|                 | 5.              | F3/V51                                                |                                                            | 0.37687    | 0.09779  | 0.14203                                 |                                 |                   | 0.00887                                                                              | 0.01034                                                               | 0.05919                                            | 0.12986          | 0.15291                                                                        | 0.208                              |                                        |                         |                                                    |
|                 | 6.              | F6/V112                                               |                                                            | 0.37919    | -0.05629 | 0.14378                                 |                                 |                   | 0.00175                                                                              | 0.00204                                                               | -0.24671                                           | 1.00077          | -0.06097                                                                       | 0.061                              |                                        |                         |                                                    |
|                 | 7.              | F1/V64                                                |                                                            | 0.37963    | 0.13723  | 0.14412                                 |                                 |                   | 0.00034                                                                              | 0.00040                                                               | -0.00006                                           | 0.00039          | -0.04806                                                                       | 0.021                              |                                        |                         |                                                    |
|                 | 8.              | F4/V58                                                | F6/V53                                                     | 0.38032    | 0.00400  | 0.14464                                 |                                 |                   | 0.00052                                                                              | 0.00061                                                               | 0.44931                                            | 3.56824          | 0.03044                                                                        | 0.016                              |                                        |                         |                                                    |

EoA 8

| Number of cases | Number of steps | Independent variables in the equation after ... steps | Independent variables not in the equation ( $P < 0,01$ $T < 0,001$ ) | Multiple R | Simple R | R square (Coefficient of determination) | % of overall variance explained | Adjusted R square | R square change from step to step (= squared semipartial correlation coefficients) | Squared partial correlation coefficients (For proportionate increase) | B (Partial regression coefficient, unstandardized) | Standard error B | Beta weights (Standardized regression coefficients, for relative contribution) | F-test for regression coefficients | F-test for overall regression equation | DF (Degrees of freedom) | Standard error (= Standard deviation of residuals) |
|-----------------|-----------------|-------------------------------------------------------|----------------------------------------------------------------------|------------|----------|-----------------------------------------|---------------------------------|-------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------|----------------------------------------------------|------------------|--------------------------------------------------------------------------------|------------------------------------|----------------------------------------|-------------------------|----------------------------------------------------|
| 35              | 1.              | F3/V13                                                |                                                                      | 0.16433    | 0.16433  | 0.02701                                 | 5.71                            | -0.00188          | 0.02701                                                                            | 0.02776                                                               | 0.16206                                            | 0.16400          | 0.17256                                                                        | 0.976                              | 0.62523                                | 3, 31                   | 18.57215                                           |
|                 | 2.              | F1/V20                                                |                                                                      | 0.22434    | -0.14708 | 0.05033                                 |                                 |                   | 0.02332                                                                            | 0.02388                                                               | -0.48970                                           | 0.54388          | -0.15736                                                                       | 0.811                              |                                        |                         |                                                    |
|                 | 3.              | F2/V10                                                |                                                                      | 0.23886    | -0.06754 | 0.05705                                 |                                 |                   | 0.00673                                                                            | 0.00678                                                               | -0.11023                                           | 0.25352          | -0.06220                                                                       | 0.221                              |                                        |                         |                                                    |
| 35              | 1.              | F3/V7                                                 |                                                                      | 0.35723    | -0.35723 | 0.12761                                 | 35.88                           | 0.24828           | 0.12761                                                                            | 0.14628                                                               | -0.14933                                           | 0.05575          | -0.55216                                                                       | 7.174 <sup>®</sup>                 | 2.61166 <sup>®</sup>                   | 6, 28                   | 16.11418                                           |
|                 | 2.              | F6/V14                                                |                                                                      | 0.51452    | 0.19229  | 0.26473                                 |                                 |                   | 0.13711                                                                            | 0.18650                                                               | 1.16234                                            | 0.41825          | 0.56785                                                                        | 7.723 <sup>★</sup>                 |                                        |                         |                                                    |
|                 | 3.              | F5/V10                                                |                                                                      | 0.56899    | -0.06754 | 0.32375                                 |                                 |                   | 0.05902                                                                            | 0.08728                                                               | -0.33322                                           | 0.27514          | -0.22973                                                                       | 1.467                              |                                        |                         |                                                    |
|                 | 4.              | F1/V3                                                 |                                                                      | 0.59165    | -0.31023 | 0.35029                                 |                                 |                   | 0.02654                                                                            | 0.04085                                                               | -0.09082                                           | 0.07652          | -0.20176                                                                       | 1.409                              |                                        |                         |                                                    |
|                 | 5.              | F2/V13                                                |                                                                      | 0.59698    | 0.16433  | 0.35639                                 |                                 |                   | 0.00610                                                                            | 0.00948                                                               | -0.10267                                           | 0.17709          | -0.10932                                                                       | 0.336                              |                                        |                         |                                                    |
|                 | 6.              | F4/V19                                                |                                                                      | 0.59902    | -0.14430 | 0.35883                                 |                                 |                   | 0.00244                                                                            | 0.00381                                                               | 0.32064                                            | 0.98306          | 0.05349                                                                        | 0.106                              |                                        |                         |                                                    |
| 35              | 1.              | F1/V64                                                |                                                                      | 0.39447    | 0.39447  | 0.15561                                 | 20.13                           | -0.00584          | 0.15561                                                                            | 0.18429                                                               | 0.00088                                            | 0.00060          | 0.49970                                                                        | 2.175                              | 0.81885                                | 8, 26                   | 18.66461                                           |
|                 | 2.              | F8/V112                                               |                                                                      | 0.42153    | -0.03247 | 0.17769                                 |                                 |                   | 0.02206                                                                            | 0.02685                                                               | -0.74889                                           | 1.46026          | -0.12267                                                                       | 0.263                              |                                        |                         |                                                    |
|                 | 3.              | F5/V83                                                |                                                                      | 0.44037    | -0.06729 | 0.19393                                 |                                 |                   | 0.01624                                                                            | 0.02015                                                               | -0.10535                                           | 0.21761          | -0.09715                                                                       | 0.234                              |                                        |                         |                                                    |
|                 | 4.              | F9/V47                                                |                                                                      | 0.44215    | 0.22718  | 0.19550                                 |                                 |                   | 0.00157                                                                            | 0.00195                                                               | 7.11329                                            | 19.81972         | 0.09226                                                                        | 0.129                              |                                        |                         |                                                    |
|                 | 5.              | F7/V42                                                |                                                                      | 0.44376    | -0.11669 | 0.19692                                 |                                 |                   | 0.00143                                                                            | 0.00178                                                               | 0.13336                                            | 0.46612          | 0.05937                                                                        | 0.062                              |                                        |                         |                                                    |
|                 | 6.              | F6/V53                                                |                                                                      | 0.44530    | 0.15538  | 0.19829                                 |                                 |                   | 0.00137                                                                            | 0.00170                                                               | -0.28044                                           | 0.86630          | -0.07440                                                                       | 0.105                              |                                        |                         |                                                    |
|                 | 7.              | F3/V51                                                |                                                                      | 0.44703    | 0.20380  | 0.19984                                 |                                 |                   | 0.00154                                                                            | 0.00192                                                               | -0.04867                                           | 0.19704          | -0.06335                                                                       | 0.061                              |                                        |                         |                                                    |
|                 | 8.              | F4/V58                                                | F2/V90                                                               | 0.44861    | 0.15128  | 0.20125                                 |                                 |                   | 0.00141                                                                            | 0.00177                                                               | 1.19634                                            | 5.57887          | 0.05372                                                                        | 0.046                              |                                        |                         |                                                    |



EoA 7

EoA 8

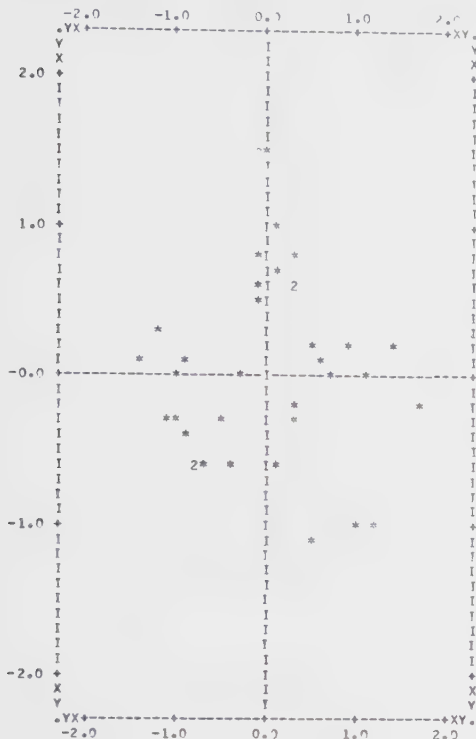
\*\*\*\*\* PLOT: STANDARDIZED RESIDUAL (DOWN) -- PREDICTED STANDARDIZED DEPENDENT VARIABLE (ACROSS) \*\*\*\*\*

DEPENDENT VARIABLE: ANSWG

VARIABLE LIST 1  
REGRESSION LIST 7

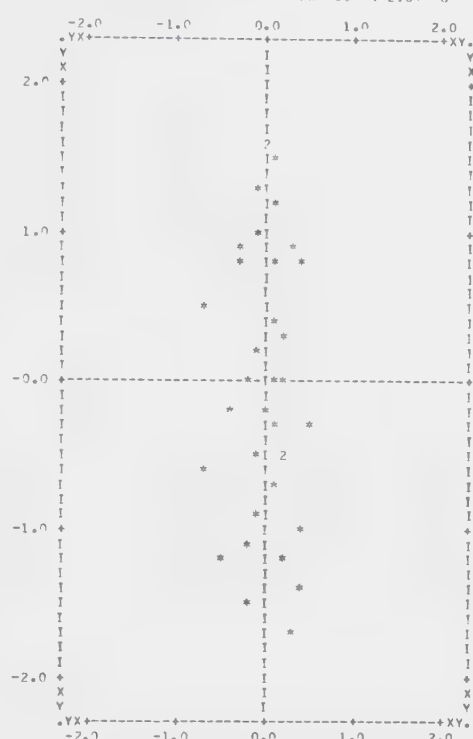
DEPENDENT VARIABLE: ANSWH

VARIABLE LIST 1  
REGRESSION LIST 8



ROWS,COLUMNS Y: VALUES OUTSIDE (-3.0,3.0)

ROWS,COLUMNS X: VALUES IN (-2.0,-2.05) OR (2.05,3.0)



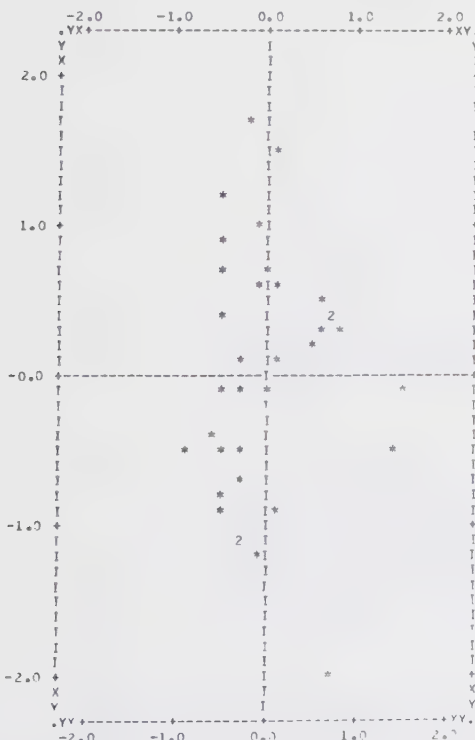
\*\*\*\*\* PLOT: STANDARDIZED RESIDUAL (DOWN) -- PREDICTED STANDARDIZED DEPENDENT VARIABLE (ACROSS) \*\*\*\*\*

DEPENDENT VARIABLE: ANSWG

VARIABLE LIST 1  
REGRESSION LIST 7

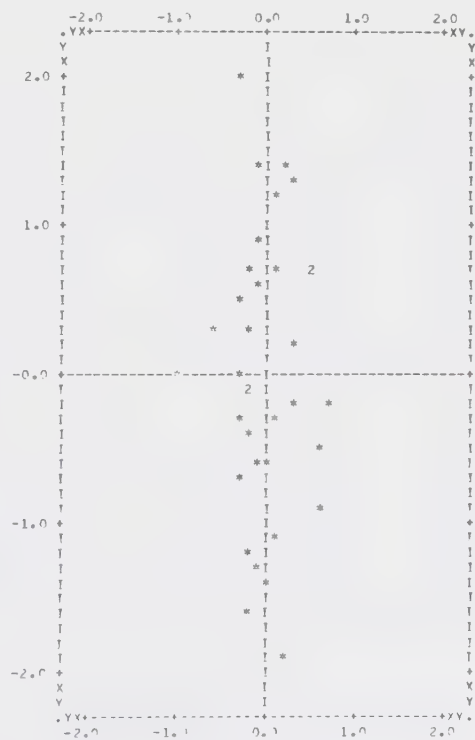
DEPENDENT VARIABLE: ANSWH

VARIABLE LIST 1  
REGRESSION LIST 8



ROWS,COLUMNS Y: VALUES OUTSIDE (-3.0,3.0)

ROWS,COLUMNS X: VALUES IN (-2.0,-2.05) OR (2.05,3.0)



The examination of residuals: Plot against  $Y_i$

They indicate no abnormality, and the least squares analysis does not appear to be invalidated.  
(cf. DRAPER and SMITH, 1966, p. 90).

EoA 9

| Number of cases | Number of steps | Independent variables in the equation after ... steps | Independent variables not in the equation ( $P < 0,01$ $T < 0,001$ ) | Multiple R | Simple R | R square (Coefficient of determination) | % of overall variance explained | Adjusted R square | R square change from step to step (= squared semipartial correlation coefficients) | Squared partial correlation coefficients (For proportionate increase) | B (Partial regression coefficient, unstandardized) | Standard error B | Beta weights (Standardized regression coefficients, for relative contribution) | F-test for regression coefficients | F-test for overall regression equation | DF (Degrees of freedom) | Standard error (= Standard deviation of residuals) |
|-----------------|-----------------|-------------------------------------------------------|----------------------------------------------------------------------|------------|----------|-----------------------------------------|---------------------------------|-------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------|----------------------------------------------------|------------------|--------------------------------------------------------------------------------|------------------------------------|----------------------------------------|-------------------------|----------------------------------------------------|
| 35              | 1.              | F3/V13                                                |                                                                      | 0.19509    | 0.19509  | 0.03806                                 | 9.84                            | 0.04208           | 0.03806                                                                            | 0.03957                                                               | 0.09750                                            | 0.08025          | 0.20747                                                                        | 1.476                              | 1.12817                                | 3, 31                   | 9.08722                                            |
|                 | 2.              | F2/V10                                                |                                                                      | 0.26428    | -0.17124 | 0.06994                                 |                                 |                   | 0.03178                                                                            | 0.03282                                                               | -0.13631                                           | 0.12405          | -0.18780                                                                       | 1.207                              |                                        |                         |                                                    |
|                 | 3.              | F1/V20                                                |                                                                      | 0.31374    | -0.15225 | 0.09843                                 |                                 |                   | 0.02859                                                                            | 0.02943                                                               | -0.26385                                           | 0.26612          | -0.16944                                                                       | 0.983                              |                                        |                         |                                                    |
| 35              | 1.              | F6/V14                                                |                                                                      | 0.29148    | -0.29148 | 0.08496                                 | 14.91                           | 0.06879           | 0.08496                                                                            | 0.09285                                                               | -0.28820                                           | 0.17697          | -0.28128                                                                       | 2.652                              | 1.31448                                | 4, 30                   | 8.97396                                            |
|                 | 2.              | F1/V3                                                 |                                                                      | 0.33484    | -0.20627 | 0.11212                                 |                                 |                   | 0.02716                                                                            | 0.03059                                                               | -0.02436                                           | 0.04077          | -0.10812                                                                       | 0.357                              |                                        |                         |                                                    |
|                 | 3.              | F4/V19                                                |                                                                      | 0.36363    | -0.11217 | 0.13223                                 |                                 |                   | 0.02011                                                                            | 0.02317                                                               | -0.47376                                           | 0.51537          | -0.15796                                                                       | 0.845                              |                                        |                         |                                                    |
|                 | 4.              | F2/V13                                                | F3/V7<br>F5/V10                                                      | 0.38617    | 0.19509  | 0.14913                                 |                                 |                   | 0.01890                                                                            | 0.01986                                                               | 0.06533                                            | 0.08463          | 0.13901                                                                        | 0.596                              |                                        |                         |                                                    |
| 35              | 1.              | F7/V42                                                |                                                                      | 0.32254    | 0.32254  | 0.10403                                 | 29.66                           | 0.06021           | 0.10403                                                                            | 0.11611                                                               | 0.36150                                            | 0.22322          | 0.32163                                                                        | 2.623                              | 1.17148                                | 9, 25                   | 8.93786                                            |
|                 | 2.              | F6/V53                                                |                                                                      | 0.43401    | -0.31730 | 0.18837                                 |                                 |                   | 0.08433                                                                            | 0.10390                                                               | -0.73228                                           | 0.41731          | -0.38634                                                                       | 3.079                              |                                        |                         |                                                    |
|                 | 3.              | F1/V64                                                |                                                                      | 0.46270    | -0.05662 | 0.21410                                 |                                 |                   | 0.02873                                                                            | 0.02637                                                               | 0.00055                                            | 0.00029          | 0.62424                                                                        | 3.704                              |                                        |                         |                                                    |
|                 | 4.              | F3/V51                                                |                                                                      | 0.51931    | -0.05383 | 0.26988                                 |                                 |                   | 0.05559                                                                            | 0.07612                                                               | -0.13010                                           | 0.09449          | -0.44525                                                                       | 1.896                              |                                        |                         |                                                    |
|                 | 5.              | F9/V47                                                |                                                                      | 0.52990    | -0.22490 | 0.28079                                 |                                 |                   | 0.01111                                                                            | 0.01545                                                               | -8.56327                                           | 9.57808          | -0.22196                                                                       | 0.799                              |                                        |                         |                                                    |
|                 | 6.              | F4/V58                                                |                                                                      | 0.53686    | -0.12329 | 0.28822                                 |                                 |                   | 0.00743                                                                            | 0.01044                                                               | -1.40778                                           | 2.67204          | -0.12633                                                                       | 0.278                              |                                        |                         |                                                    |
|                 | 7.              | F5/V83                                                |                                                                      | 0.54231    | -0.11351 | 0.29410                                 |                                 |                   | 0.00588                                                                            | 0.00833                                                               | -0.03826                                           | 0.12021          | -0.07050                                                                       | 0.101                              |                                        |                         |                                                    |
|                 | 8.              | F8/V112                                               |                                                                      | 0.54395    | 0.08094  | 0.29588                                 |                                 |                   | 0.00178                                                                            | 0.00253                                                               | 0.18294                                            | 0.70066          | 0.06969                                                                        | 0.068                              |                                        |                         |                                                    |
|                 | 9.              | F2/V90                                                |                                                                      | 0.54464    | -0.07861 | 0.29683                                 |                                 |                   | 0.00076                                                                            | 0.00107                                                               | -0.13687                                           | 0.83898          | -0.03480                                                                       | 0.027                              |                                        |                         |                                                    |

EoA 10

| Number of cases | Number of steps | Independent variables in the equation after ... steps | Independent variables not in the equation ( $P < 0,01$ $T < 0,001$ ) | Multiple R | Simple R | R square (Coefficient of determination) | % of overall variance explained | Adjusted R square | R square change from step to step (= squared semipartial correlation coefficients) | Squared partial correlation coefficients (For proportionate increase) | B (Partial regression coefficient, unstandardized) | Standard error B | Beta weights (Standardized regression coefficients, for relative contribution) | F-test for regression coefficients | F-test for overall regression equation | DF (Degrees of freedom) | Standard error (= Standard deviation of residuals) |
|-----------------|-----------------|-------------------------------------------------------|----------------------------------------------------------------------|------------|----------|-----------------------------------------|---------------------------------|-------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------|----------------------------------------------------|------------------|--------------------------------------------------------------------------------|------------------------------------|----------------------------------------|-------------------------|----------------------------------------------------|
| 35              | 1.              | F3/V13                                                |                                                                      | 0.15296    | -0.15296 | 0.02340                                 | 5.50                            | -0.00408          | 0.02340                                                                            | 0.02398                                                               | -0.05861                                           | 0.06728          | -0.15230                                                                       | 0.759                              | 0.60121                                | 3, 31                   | 7.61907                                            |
|                 | 2.              | F2/V10                                                |                                                                      | 0.20407    | -0.14042 | 0.04164                                 |                                 |                   | 0.01825                                                                            | 0.01859                                                               | -0.07652                                           | 0.10401          | -0.12874                                                                       | 0.541                              |                                        |                         |                                                    |
|                 | 3.              | F1/V20                                                |                                                                      | 0.23448    | 0.11759  | 0.05498                                 |                                 |                   | 0.01334                                                                            | 0.01352                                                               | 0.14760                                            | 0.22312          | 0.11574                                                                        | 0.438                              |                                        |                         |                                                    |
| 35              | 1.              | F6/V14                                                |                                                                      | 0.17009    | -0.17009 | 0.02893                                 | 7.35                            | -0.05009          | 0.02893                                                                            | 0.02979                                                               | -0.16016                                           | -0.20166         | -0.19087                                                                       | 0.631                              | 0.45977                                | 5, 29                   | 7.80007                                            |
|                 | 2.              | F2/V13                                                |                                                                      | 0.24397    | -0.15296 | 0.05952                                 |                                 |                   | 0.03059                                                                            | 0.03253                                                               | -0.05072                                           | 0.08292          | -0.13179                                                                       | 0.374                              |                                        |                         |                                                    |
|                 | 3.              | F3/V7                                                 |                                                                      | 0.26261    | 0.08758  | 0.06896                                 |                                 |                   | 0.00944                                                                            | 0.01014                                                               | 0.01058                                            | 0.02876          | 0.09545                                                                        | 0.156                              |                                        |                         |                                                    |
|                 | 4.              | F4/V19                                                |                                                                      | 0.26832    | 0.09602  | 0.07199                                 |                                 |                   | 0.00308                                                                            | 0.00327                                                               | 0.15353                                            | 0.47518          | 0.06250                                                                        | 0.104                              |                                        |                         |                                                    |
|                 | 5.              | F5/V10                                                | F1/V3                                                                | 0.27101    | -0.14042 | 0.07345                                 |                                 |                   | 0.00145                                                                            | 0.00157                                                               | -0.02736                                           | 0.12825          | -0.04603                                                                       | 0.046                              |                                        |                         |                                                    |
| 35              | 1.              | F3/V51                                                |                                                                      | 0.36032    | 0.36032  | 0.12983                                 | 28.43                           | 0.09874           | 0.12983                                                                            | 0.14920                                                               | 0.08022                                            | 0.07643          | 0.33525                                                                        | 1.102                              | 1.29098                                | 8, 28                   | 7.34007                                            |
|                 | 2.              | F6/V53                                                |                                                                      | 0.41306    | -0.19228 | 0.17082                                 |                                 |                   | 0.04079                                                                            | 0.04918                                                               | -0.82912                                           | 0.33604          | -0.40729                                                                       | 3.505                              |                                        |                         |                                                    |
|                 | 3.              | F8/V112                                               |                                                                      | 0.46396    | 0.06462  | 0.21526                                 |                                 |                   | 0.04464                                                                            | 0.05689                                                               | -0.78720                                           | 0.56644          | -0.31466                                                                       | 1.931                              |                                        |                         |                                                    |
|                 | 4.              | F4/V58                                                |                                                                      | 0.50230    | 0.23905  | 0.25230                                 |                                 |                   | 0.03704                                                                            | 0.04954                                                               | 2.19332                                            | 2.19406          | 0.24034                                                                        | 1.027                              |                                        |                         |                                                    |
|                 | 5.              | F7/V42                                                |                                                                      | 0.51756    | 0.05121  | 0.26787                                 |                                 |                   | 0.01557                                                                            | 0.02127                                                               | 0.17733                                            | 0.18061          | 0.19266                                                                        | 0.962                              |                                        |                         |                                                    |
|                 | 6.              | F1/V64                                                |                                                                      | 0.52889    | 0.28404  | 0.27973                                 |                                 |                   | 0.01186                                                                            | 0.01947                                                               | 0.00013                                            | 0.00023          | 0.17350                                                                        | 0.293                              |                                        |                         |                                                    |
|                 | 7.              | F5/V83                                                |                                                                      | 0.53135    | 0.06177  | 0.28233                                 |                                 |                   | 0.00260                                                                            | 0.00362                                                               | 0.03266                                            | 0.06441          | 0.07355                                                                        | 0.150                              |                                        |                         |                                                    |
|                 | 8.              | F9/V47                                                | F2/V90                                                               | 0.53319    | -0.09010 | 0.28430                                 |                                 |                   | 0.00197                                                                            | 0.00275                                                               | 2.05549                                            | 7.68815          | 0.06505                                                                        | 0.071                              |                                        |                         |                                                    |

EoA 9

EoA 10

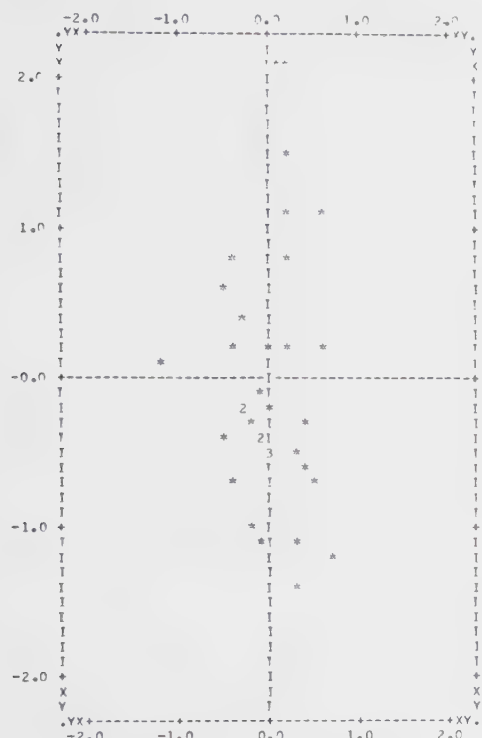
\*\*\*\*\* PLOT: STANDARDIZED RESIDUAL (DOWN) -- PREDICTED STANDARDIZED DEPENDENT VARIABLE (ACROSS) \*\*\*\*\*

DEPENDENT VARIABLE: ANSWI

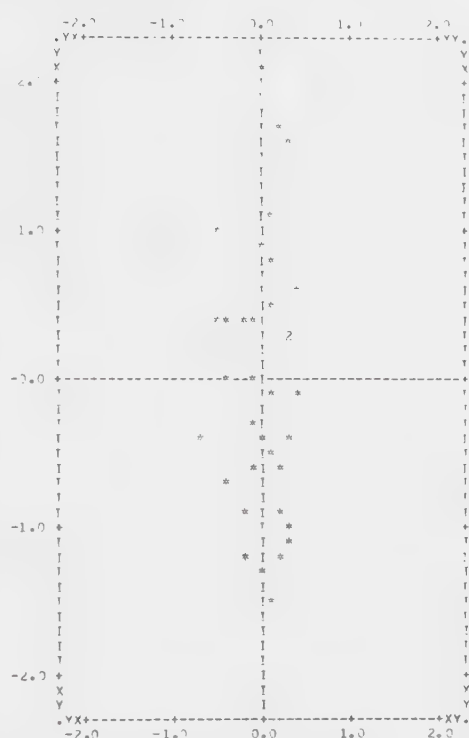
VARIABLE LIST 1  
REGRESSION LIST 2

DEPENDENT VARIABLE: ANSWK

VARIABLE LIST 1  
REGRESSION LIST 10



ROWS,COLUMNS Y: VALUES OUTSIDE (-3.0,3.0)



ROWS,COLUMNS X: VALUES IN (-3.0,-2.05) OR (2.05,3.0)

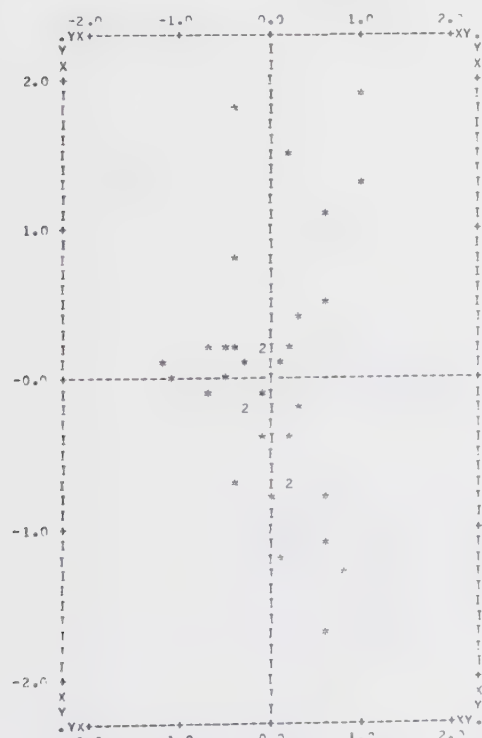
\*\*\*\*\* PLOT: STANDARDIZED RESIDUAL (DOWN) -- PREDICTED STANDARDIZED DEPENDENT VARIABLE (ACROSS) \*\*\*\*\*

DEPENDENT VARIABLE: ANSWI

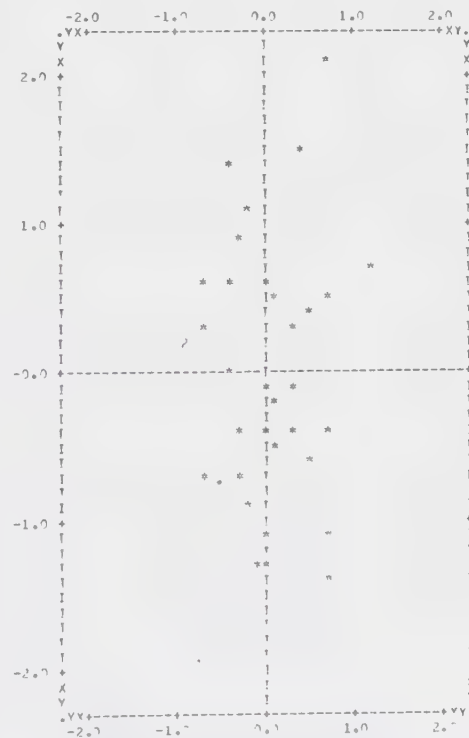
VARIABLE LIST 1  
REGRESSION LIST 9

DEPENDENT VARIABLE: ANSWK

VARIABLE LIST 1  
REGRESSION LIST 10



ROWS,COLUMNS Y: VALUES OUTSIDE (-3.0,3.0)



ROWS,COLUMNS X: VALUES IN (-3.0,-2.05) OR (2.05,3.0)

The examination of residuals: Plot against  $Y_1$

They indicate no abnormality, and the least squares analysis does not appear to be invalidated.  
(cf. DRAPER and SMITH, 1966, p. 90).

EoA 11

| Number of cases | Number of steps | Independent variables in the equation after ... steps | Independent variables not in the equation ( $P < 0, 01$ $T < 0, 001$ ) | Multiple R | Simple R | R square (Coefficient of determination) | % of overall variance explained | Adjusted R square | R square change from step to step (= squared semipartial correlation coefficients) | Squared partial correlation coefficients (For proportionate increase) | B (Partial regression coefficient, unstandardized) | Standard error B | Beta weights (Standardized regression coefficients, for relative contribution) | F-test for regression coefficients | F-test for overall regression equation | DF (Degrees of freedom) | Standard error (= Standard deviation of residuals) |
|-----------------|-----------------|-------------------------------------------------------|------------------------------------------------------------------------|------------|----------|-----------------------------------------|---------------------------------|-------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------|----------------------------------------------------|------------------|--------------------------------------------------------------------------------|------------------------------------|----------------------------------------|-------------------------|----------------------------------------------------|
| 35              | 1.              | F3/V13                                                |                                                                        | 0.29567    | 0.29567  | 0.08742                                 | 10.03                           | 0.04404           | 0.08742                                                                            | 0.09569                                                               | 0.14668                                            | 0.08303          | 0.30135                                                                        | 3.121                              | 1.15160                                | 3, 31                   | 9.40230                                            |
|                 | 2.              | F1/V20                                                |                                                                        | 0.30729    | -0.07371 | 0.09443                                 |                                 |                   | 0.00701                                                                            | 0.00706                                                               | -0.14197                                           | 0.27535          | -0.08803                                                                       | 0.266                              |                                        |                         |                                                    |
|                 | 3.              | F2/V10                                                |                                                                        | 0.31666    | -0.06113 | 0.10027                                 |                                 |                   | 0.00584                                                                            | 0.00587                                                               | -0.05758                                           | 0.12835          | -0.07660                                                                       | 0.201                              |                                        |                         |                                                    |
| 35              | 1.              | F2/V13                                                |                                                                        | 0.29567    | 0.29567  | 0.08742                                 | 24.13                           | 0.11051           | 0.08742                                                                            | 0.09579                                                               | 0.13076                                            | 0.09984          | 0.26864                                                                        | 1.715                              | 1.48435                                | 6, 28                   | 9.08469                                            |
|                 | 2.              | F6/V14                                                |                                                                        | 0.38183    | 0.20392  | 0.14579                                 |                                 |                   | 0.05837                                                                            | 0.06833                                                               | 0.54855                                            | 0.23580          | 0.51690                                                                        | 5.412                              |                                        |                         |                                                    |
|                 | 3.              | F5/V10                                                |                                                                        | 0.45512    | -0.06113 | 0.20714                                 |                                 |                   | 0.06135                                                                            | 0.07738                                                               | -0.25044                                           | 0.15512          | -0.33315                                                                       | 2.607                              |                                        |                         |                                                    |
|                 | 4.              | F3/V7                                                 |                                                                        | 0.47831    | -0.17798 | 0.22878                                 |                                 |                   | 0.02164                                                                            | 0.02806                                                               | -0.03351                                           | 0.03143          | -0.23910                                                                       | 1.137                              |                                        |                         |                                                    |
|                 | 5.              | F4/V19                                                |                                                                        | 0.48587    | 0.00653  | 0.23607                                 |                                 |                   | 0.00729                                                                            | 0.00954                                                               | 0.27381                                            | 0.55422          | 0.08814                                                                        | 0.244                              |                                        |                         |                                                    |
|                 | 6.              | F1/V3                                                 |                                                                        | 0.49124    | -0.08620 | 0.24132                                 |                                 |                   | 0.00525                                                                            | 0.00692                                                               | 0.01899                                            | 0.04314          | 0.08138                                                                        | 0.194                              |                                        |                         |                                                    |
| 35              | 1.              | F3/V51                                                |                                                                        | 0.26946    | 0.26946  | 0.07261                                 | 17.45                           | -0.00236          | 0.07261                                                                            | 0.07830                                                               | 0.09289                                            | 0.08726          | 0.30695                                                                        | 1.133                              | 0.81552                                | 7, 27                   | 9.65001                                            |
|                 | 2.              | F5/V83                                                |                                                                        | 0.37461    | -0.23059 | 0.14034                                 |                                 |                   | 0.06773                                                                            | 0.07058                                                               | -0.20474                                           | 0.12975          | -0.36429                                                                       | 2.490                              |                                        |                         |                                                    |
|                 | 3.              | F7/V42                                                |                                                                        | 0.40091    | -0.12761 | 0.16073                                 |                                 |                   | 0.02039                                                                            | 0.02430                                                               | -0.20830                                           | 0.23677          | -0.17721                                                                       | 0.759                              |                                        |                         |                                                    |
|                 | 4.              | F2/V90                                                |                                                                        | 0.40884    | -0.07895 | 0.16715                                 |                                 |                   | 0.00642                                                                            | 0.00771                                                               | 0.33105                                            | 0.03033          | 0.08128                                                                        | 0.134                              |                                        |                         |                                                    |
|                 | 5.              | F6/V53                                                |                                                                        | 0.41394    | 0.04298  | 0.17135                                 |                                 |                   | 0.00430                                                                            | 0.00507                                                               | 0.19120                                            | 0.41932          | 0.09787                                                                        | 0.208                              |                                        |                         |                                                    |
|                 | 6.              | F9/V47                                                |                                                                        | 0.41737    | 0.08908  | 0.17419                                 |                                 |                   | 0.00284                                                                            | 0.00344                                                               | -2.45177                                           | 9.14343          | -0.06135                                                                       | 0.072                              |                                        |                         |                                                    |
|                 | 7.              | F1/V84                                                |                                                                        | 0.41777    | 0.20865  | 0.17453                                 |                                 |                   | 0.00034                                                                            | 0.00041                                                               | -0.00003                                           | 0.00030          | -0.03410                                                                       | 0.011                              |                                        |                         |                                                    |
|                 |                 |                                                       | F4/V58<br>F8/V112                                                      |            |          |                                         |                                 |                   |                                                                                    |                                                                       |                                                    |                  |                                                                                |                                    |                                        |                         |                                                    |

EoA 12

| Number of cases | Number of steps | Independent variables in the equation after ... steps | Independent variables not in the equation ( $P < 0, 01$ $T < 0, 001$ ) | Multiple R | Simple R | R square (Coefficient of determination) | % of overall variance explained | Adjusted R square | R square change from step to step (= squared semipartial correlation coefficients) | Squared partial correlation coefficients (For proportionate increase) | B (Partial regression coefficient, unstandardized) | Standard error B | Beta weights (Standardized regression coefficients, for relative contribution) | F-test for regression coefficients | F-test for overall regression equation | DF (Degrees of freedom) | Standard error (= Standard deviation of residuals) |
|-----------------|-----------------|-------------------------------------------------------|------------------------------------------------------------------------|------------|----------|-----------------------------------------|---------------------------------|-------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------|----------------------------------------------------|------------------|--------------------------------------------------------------------------------|------------------------------------|----------------------------------------|-------------------------|----------------------------------------------------|
| 35              | 1.              | F1/V20                                                |                                                                        | 0.36352    | 0.36352  | 0.13215                                 | 14.08                           | 0.08711           | 0.13215                                                                            | 0.15227                                                               | 0.91574                                            | 0.42467          | 0.35975                                                                        | 4.850                              | 1.69349                                | 3, 31                   | 14.50126                                           |
|                 | 2.              | F2/V10                                                |                                                                        | 0.37412    | -0.10803 | 0.13997                                 |                                 |                   | 0.00782                                                                            | 0.00788                                                               | -0.10378                                           | 0.19795          | -0.08747                                                                       | 0.275                              |                                        |                         |                                                    |
|                 | 3.              | F3/V13                                                |                                                                        | 0.37525    | -0.02005 | 0.14081                                 |                                 |                   | 0.00064                                                                            | 0.00064                                                               | -0.02234                                           | 0.12806          | -0.02908                                                                       | 0.030                              |                                        |                         |                                                    |
| 35              | 1.              | F4/V19                                                |                                                                        | 0.39264    | 0.39264  | 0.15417                                 | 19.82                           | 0.09133           | 0.15417                                                                            | 0.18227                                                               | 2.28185                                            | 0.88228          | 0.46539                                                                        | 6.689                              | 1.43400                                | 5, 29                   | 14.48329                                           |
|                 | 2.              | F5/V10                                                |                                                                        | 0.40541    | -0.10803 | 0.16435                                 |                                 |                   | 0.01019                                                                            | 0.01219                                                               | -0.20306                                           | 0.23814          | -0.17115                                                                       | 0.727                              |                                        |                         |                                                    |
|                 | 3.              | F8/V14                                                |                                                                        | 0.41831    | -0.02629 | 0.17498                                 |                                 |                   | 0.01063                                                                            | 0.01289                                                               | 0.33502                                            | 0.37444          | 0.20003                                                                        | 0.801                              |                                        |                         |                                                    |
|                 | 4.              | F3/V7                                                 |                                                                        | 0.43154    | 0.00188  | 0.18623                                 |                                 |                   | 0.01125                                                                            | 0.01363                                                               | -0.04432                                           | 0.04969          | -0.20032                                                                       | 0.795                              |                                        |                         |                                                    |
|                 | 5.              | F2/V13                                                |                                                                        | 0.44523    | -0.02005 | 0.19823                                 |                                 |                   | 0.01200                                                                            | 0.01497                                                               | -0.10144                                           | 0.15397          | -0.13205                                                                       | 0.434                              |                                        |                         |                                                    |
|                 |                 |                                                       | F1/V3                                                                  |            |          |                                         |                                 |                   |                                                                                    |                                                                       |                                                    |                  |                                                                                |                                    |                                        |                         |                                                    |
| 35              | 1.              | F9/V47                                                |                                                                        | 0.30413    | 0.30413  | 0.09249                                 | 32.96                           | 0.12333           | 0.09249                                                                            | 0.10192                                                               | 35.42506                                           | 15.28558         | 0.56168                                                                        | 5.371                              | 1.36572                                | 9, 25                   | 14.26385                                           |
|                 | 2.              | F8/V112                                               |                                                                        | 0.47666    | 0.26394  | 0.22720                                 |                                 |                   | 0.13471                                                                            | 0.17431                                                               | 1.50115                                            | 1.11801          | 0.30061                                                                        | 1.803                              |                                        |                         |                                                    |
|                 | 3.              | F2/V90                                                |                                                                        | 0.50688    | 0.09541  | 0.25876                                 |                                 |                   | 0.03156                                                                            | 0.04258                                                               | 1.57384                                            | 1.33692          | 0.24482                                                                        | 1.382                              |                                        |                         |                                                    |
|                 | 4.              | F1/V84                                                |                                                                        | 0.52629    | 0.12234  | 0.27698                                 |                                 |                   | 0.01822                                                                            | 0.02520                                                               | -0.00068                                           | 0.00046          | -0.46891                                                                       | 2.193                              |                                        |                         |                                                    |
|                 | 5.              | F3/V51                                                |                                                                        | 0.56234    | 0.24755  | 0.31623                                 |                                 |                   | 0.03928                                                                            | 0.05740                                                               | 0.17689                                            | 0.15079          | 0.37034                                                                        | 1.376                              |                                        |                         |                                                    |
|                 | 6.              | F7/V42                                                |                                                                        | 0.56802    | -0.18564 | 0.32265                                 |                                 |                   | 0.00642                                                                            | 0.00648                                                               | -0.18040                                           | 0.35623          | -0.09819                                                                       | 0.256                              |                                        |                         |                                                    |
|                 | 7.              | F4/V58                                                |                                                                        | 0.57271    | 0.03053  | 0.32799                                 |                                 |                   | 0.00535                                                                            | 0.00706                                                               | 1.60801                                            | 4.26428          | 0.08828                                                                        | 0.142                              |                                        |                         |                                                    |
|                 | 8.              | F5/V83                                                |                                                                        | 0.57377    | -0.03407 | 0.32921                                 |                                 |                   | 0.00121                                                                            | 0.00180                                                               | -0.04316                                           | 0.19185          | -0.04865                                                                       | 0.051                              |                                        |                         |                                                    |
|                 | 9.              | F6/V53                                                |                                                                        | 0.57411    | 0.04207  | 0.32961                                 |                                 |                   | 0.00040                                                                            | 0.00060                                                               | 0.08102                                            | 0.66598          | 0.02628                                                                        | 0.015                              |                                        |                         |                                                    |

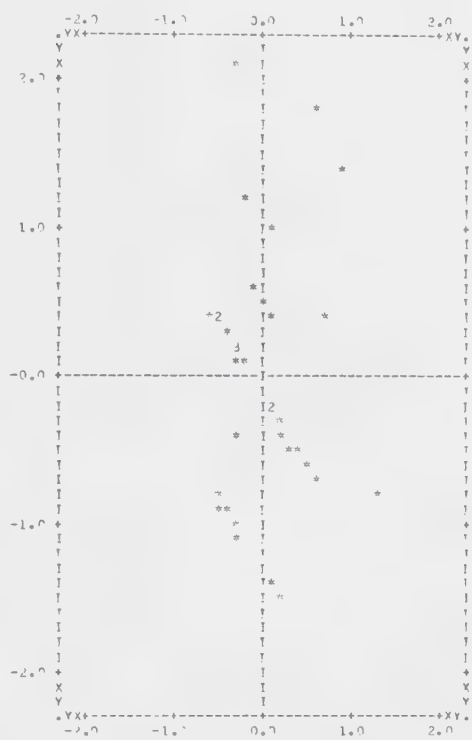
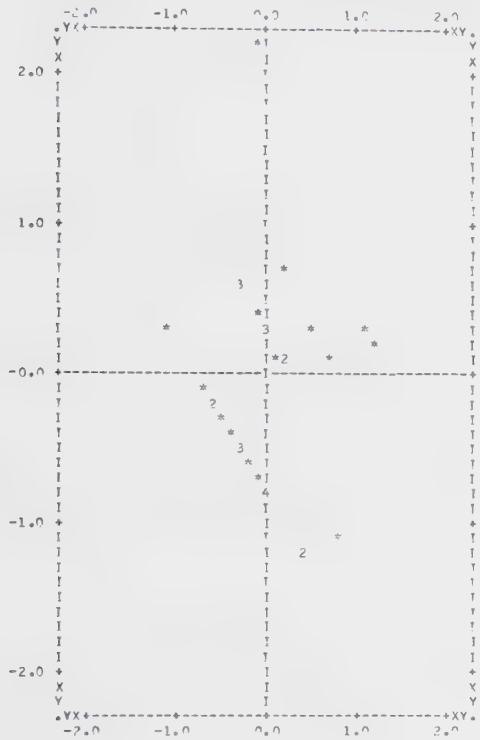


EoA 11

EoA 12

\*\*\*\*\* PLOT: STANDARDIZED RESIDUAL (DOWN) -- PREDICTED STANDARDIZED DEPENDENT VARIABLE (ACROSS) \*\*\*\*\*

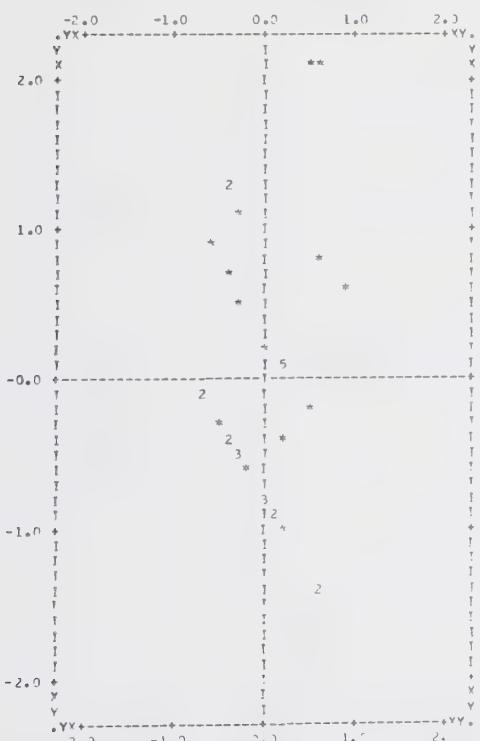
DEPENDENT VARIABLE: ANSWL VARIABLE LIST 1 REGRESSION LIST 11 DEPENDENT VARIABLE: ANSWM VARIABLE LIST 1 REGRESSION LIST 12



ROWS,COLUMNS Y: VALUES OUTSIDE (-3.0,3.0) ROWS,COLUMNS X: VALUES IN (-3.0,-2.05) OR (2.05,3.0)

\*\*\*\*\* PLOT: STANDARDIZED RESIDUAL (DOWN) -- PREDICTED STANDARDIZED DEPENDENT VARIABLE (ACROSS) \*\*\*\*\*

DEPENDENT VARIABLE: ANSWL VARIABLE LIST 1 REGRESSION LIST 11 DEPENDENT VARIABLE: ANSWM VARIABLE LIST 1 REGRESSION LIST 12



ROWS,COLUMNS Y: VALUES OUTSIDE (-3.0,3.0) ROWS,COLUMNS X: VALUES IN (-3.0,-2.05) OR (2.05,3.0)

The examination of residuals: Plot against  $Y_i$

Abnormality is indicated by the plots. They indicate a systematic departure from fitted equation: positive residuals correspond to low  $Y$ 's, negative residuals to high  $Y$ 's. The error in analysis indicated herewith is due to the fact that these two questions were answered by relatively few test persons. In performing the regression analysis, certain assumptions were made about the errors, e.g. that the errors follow a normal distribution. This assumption is not fulfilled here.



## BIBLIOGRAPHY

The following list is presented in five sections:

### (1) Primary literature

All titles which are directly related and referred to in this paper are listed in the first section.

### (2) Computer programs

The computer programs used are listed separately in section 2.

### (3) Sources

The sources used for all the variables of Sphere II (physical-functional variables) are presented in section 3. Most of them are written in Thai.

Section 3 lists the sources referred to in appendix 7.

### (4) Periodicals and Journals

The periodicals mentioned have been reviewed for the last five years usually (1970 - 1975), newspapers from 1974.

### (5) Secondary literature concerning Bangkok and Thailand (mostly written in Thai)

As mentioned in the preface, a digression about Bangkok-Metropolis had to be omitted.

Titles listed here can be found in the libraries of the following institutions:

- Bangkok Metropolis Municipality
- Chulalongkorn University
- National Economic and Social Development Board NESDB
- National Institute of Development Administration NIDA
- National Research Council
- Ramkhamhaeng University
- Thammasat University

(1) Primary literature

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## Curriculum vitae

Am 4. Juni 1948 wurde ich, Reto Viktor Callegari, Bürger von Stäfa, in Stäfa geboren. Ich durchlief die Primar- und Sekundarschule in Stäfa. Im Jahre 1967 bestand ich die eidgenössische Maturitätsprüfung an der Oberrealabteilung der Kantonsschule Zürcher Oberland in Wetzikon und immatrikulierte mich im selben Jahr an der Philosophischen Fakultät II der Universität Zürich. Während der ersten drei Jahre konzentrierte ich mich auf die Geographie, die Mathematik und die Geologie, belegte jedoch im weiteren zunehmend Vorlesungen in den Fächern Sozialökonomie und Psychologie. Die Studien wurden infolge Militärdienstes 1969/1970 für ein Jahr unterbrochen.

An der Philosophischen Fakultät II schloss ich im Jahre 1973 mein Studium mit dem Hauptfach Geographie und den Nebenfächern Geologie und Wirtschaftsgeographie ab.

Mit der Wahl eines fremdenverkehrsgeographischen Themas für die Diplomarbeit wandte ich mich mehr anthropogeographischen Fragen zu. Zur Datenerhebung begab ich mich für ein halbes Jahr in den französischsprachigen Teil des Wallis.

Von 1972 bis 1973 arbeitete ich als Hilfslehrer für das Fach Geographie am kantonalen Unterseminar in Küsnacht. Nach Beendigung des Studiums war ich als Sachbearbeiter in Planungsfragen bei einer Grossbank in Zürich tätig.

Die Diplomarbeit führte mich sehr bald zum Thema meiner Dissertation. Das Projekt wurde anfangs 1974 dem National Research Council of Thailand vorgelegt, der es im Sommer 1974 unter der Nummer 1104/6022 bewilligte.

Bevor ich mich im August 1974 zur Datenerfassung nach Thailand begab, wirkte ich im Rahmen eines Projektes der Weltbank im Jemen an Luftbilddauswertungen mit.

Vom August 1974 bis Oktober 1975 hielt ich mich in Thailand auf.

Die Dissertation stand unter der Leitung von Herrn Prof. Dr. H. Boesch. Ihm zur Seite stand Herr Prof. Dr. A. Leemann.

Seit Herbst 1975 arbeite ich als Assistent von Herrn Prof. Dr. H. Boesch am Geographischen Institut.

Vorlesungen, Uebungen und Exkursionen besuchte ich bei folgenden Dozenten und Lehrbeauftragten:

- Geographie und Ethnologie: Bachmann, Bär, Boesch, Bögli, Elsasser, Furrer, Gensler, Gutermann, Gutersohn, Guyan, Häfner, Henking, Kilchenmann, Frau Kishimoto, Leemann, Schüepp, Spiess, Suter, Ulrich.
- Geologie : Büchi, Dünner, Gansser, Hantke, Jäckli, Trümphy, Dal Vesco.
- Mathematik : van der Waerden.
- Volkskunde : Niederer.
- Wirtschaftswissenschaft, : Borkowsky, Büchner, Fischer, Hauser, Herold, Kofler, Wirtschaftsgeschichte, Statistik Frau Schelbert-Syfrig, Silberschmitt, Stolper.
- Psychologie : Bischof, Fischer, Widmer.
- Kunstwissenschaft : Frau Leuzinger.
- Botanik : Bachofen, Cook, Rohweder, Schlittler, Wanner.
- Petrographie : Burri.
- Pädagogik und Didaktik : Nigg, Widmer, Woodtli.









